

Message

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**From:** Richardson, Samuel [Richardson.Samuel@epa.gov]  
**Sent:** 6/14/2019 8:10:45 PM  
**To:** bmartin@toeroek.com; Group DDC-Customer [DDC-Customer@epa.gov]  
**CC:** Paul Kieler [pkieler@toeroek.com]; Kevin Geraci [kgeraci@toeroek.com]; Michelle Hoover [mhoover@toeroek.com]; Greene, Flora [Greene.Flor@epa.gov]; Bammel, Brandon [Bammel.Brandon@epa.gov]; Pigram, Michael [Pigram.Michael@epa.gov]  
**Subject:** REPA Zone 2 Region 6 - - 2019 IR Flyover Project  
**Attachments:** 68HERH19D0021\_IR Flyover Task Order 68HE0419F0053.pdf

Hello All,

Please review the attached Task Order 68HE0419F0053. Send all questions or concerns to my email address.

Thanks,  
Samuel Richardson  
Contract Officer/Specialist  
Region 4, Acquisition Management Section  
U.S. Environmental Protection Agency  
Office: (404) 562-8224  
Intranet: <http://r4intra.epa.gov/opm/ofc-of-acquisition/index.html>

## STATEWIDE RULE 32 EXCEPTION DATA SHEET

(05/2012)  
Revised  
DBC0712

(FILING FEE REQUIRED)

\*\$ 375.00 PER RRC LEASE NUMBER OR \$375.00 PER RRC GAS ID NUMBER. IF SEVERAL LEASES ARE SURFACE COMMINGLED AND FLARED AT THE BATTERY, FEE IS \$375.00 PER COMMINGLING PERMIT NUMBER. (STATEWIDE RULE 78 AMENDMENT EFFECTIVE MAY 1, 2012)

Operator Number: 135316

Operator Name & Address: Carrizo (Eagle Ford) LLC  
500 Dallas Street Ste.  
2300  
Houston, TX 77002

24 hr Emergency # (866) 515-1998  
 RRC DISTRICT 01  
 COUNTY LA SALLE

Well/Lease/Plant/System Name JENNINGS CPFField Eagleville (Eagle Ford-1)

Identification by ID# (Indicate Type):

API# \_\_\_\_\_ Gas ID# X Lease ID# \_\_\_\_\_ Drilling Permit# \_\_\_\_\_ Commingle Permit# \_\_\_\_\_ Plant ID# \_\_\_\_\_  
 Number(s) 15873

Type of gas to be flared/vented (mark box): X Casinghead Gas \_\_\_\_\_ Gas Well GasIs this well/lease/plant subject to Statewide Rule 36 (H<sub>2</sub>S Area)? X Yes \_\_\_\_\_ NoIf yes\*, Form II-9 Certificate # \_\_\_\_\_ H<sub>2</sub>S Concentration \_\_\_\_\_ ppm

\*Proximity to populated areas-(Highways, Roads, Towns, House or Homes, Etc.) LOCATE ON MAP

Disposition of gas (mark box): X Flare \_\_\_\_\_ Flare Stack/ Height \_\_\_\_\_ Flare Pit \_\_\_\_\_ VentTime period requested (days,months): 730 Effective 01/23/2017 Expiration 01/22/2019

Volume to be flared/vented during time period requested:

MCF/D per well or \_\_\_\_\_ MCF/D per lease or \_\_\_\_\_ MCF/D per plant/system or 200 MCF total for time period

Method of Measurement: OrificePurpose of Filing (circle): No Pipeline\* System Upset Clean Up/Test Well Size Compressor Other

\*If no, distance to nearest pipeline \_\_\_\_\_ mile(s) - attach map showing location of site and nearest pipeline(s).

Explanation: Possible system upsets including but not limited to: 1) high gas pipeline pressures; 2) loss of the fuel gas/wet fuel gas/improper fuel gas/improper fuel gas pressure; 3) compressor safety panel shut down; 4) pipeline gas quality causes slam valves to close H<sub>2</sub>S, CO<sub>2</sub>, water dewpoint; 5) hydrates form due to cold weather/rich wet gas.

**Before an exception can be granted, the following information must be submitted with this data sheet:**

- \* Explanation as to why the operations cannot be shut-in and the gas must be vented or flared
- \* If gas is vented, explain why the gas cannot be safely and continuously burned and that the gas can be safely vented
- \* Explanation of how all legal uses for casinghead gas have been investigated and exhausted
- \* Distance to nearest pipeline and operating conditions (e.g. sweet or sour, line pressure etc.)

## OPERATOR'S CERTIFICATION

I declare under penalties prescribed in Sec.91.143, Texas Natural Resources Code, that I am authorized to request this exception, that this data sheet and its attachments were prepared by me or under my supervision and direction, and that the data and facts stated therein are true, correct, and complete, to the best of my knowledge.

L. Kiki Lockett

EH&S Analyst

Typed or printed name of operators's representative

Title

(713) 328-1046

10/09/2017

Telephone: Area Code - Number

Date

Signature

X Does the applicant request to receive all Commission correspondence concerning the administrative review of this application VIA EMAIL ONLY: If yes, indicate email address \_\_\_\_\_ @ kiki.lockett@carrizo.com

## RRC USE ONLY

Administrative action: Approved \_\_\_\_\_ Denied \_\_\_\_\_

Permit Number \_\_\_\_\_ Effective Date \_\_\_\_\_ Expiration Date \_\_\_\_\_

ALL PRODUCTION SHOULD BE ACCURATELY MEASURED WITH DISPOSITION OF GAS REPORTED TO CODE 4 ON MONTHLY PR

Return to: RAILROAD COMMISSION OF TEXAS  
 TERRY EDWARDS  
 PO BOX 12967  
 AUSTIN TX 78711

ED\_005393\_00000565-00001

CHRISTOPHER S. HOTCHKISS\*  
GEORGE C. NEALE†

\* BOARD CERTIFIED - ADMINISTRATIVE LAW  
TEXAS BOARD OF LEGAL SPECIALIZATION  
† ALSO LICENSED TO PRACTICE IN LOUISIANA

GEORGE C. NEALE  
ATTORNEYS AT LAW  
1601 RIO GRANDE STREET, SUITE 335  
AUSTIN, TEXAS 78701

MAILING ADDRESS:  
POST OFFICE BOX 1945  
AUSTIN, TEXAS 78767

FILED

TELEPHONE (512) 477-1976  
FACSIMILE (512) 477-1907

2019 FEB -5 PM 2:21

DOCKET SERVICES  
RAILROAD COMMISSION  
OF TEXAS

February 5, 2019

Mr. Richard Eyster  
Technical Examiner  
Hearings Division  
RAILROAD COMMISSION OF TEXAS  
P.O. Drawer 12967  
Austin, Texas 78711

In Re: Oil and Gas Docket No. 01-0316357; Application of Carrizo (Eagle Ford) LLC for  
an Exception to Statewide Rule 32 for Various Wells, Eagleville (Eagle Ford-1)  
Field, Atascosa, La Salle, and McMullen Counties, Texas [Hearing Held: January  
18, 2019]

Dear Mr. Eyster:

Enclosed please find a draft Examiners' Report and Recommendation, as well as a draft Final  
Order, which are being submitted for your review and consideration in the above referenced matter.

Thank you for your assistance. Please contact me if you have any questions.

Respectfully submitted,



George C. Neale  
Christopher S. Hotchkiss  
Attorneys for Carrizo (Eagle Ford) LLC

CSH/  
encls.

cc: Ms. Lynn Latombe

**RAILROAD COMMISSION OF TEXAS**

**HEARINGS DIVISION**

**OIL AND GAS DOCKET NO. 01-0316357**

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**THE APPLICATION OF CARRIZO (EAGLE FORD) LLC FOR AN EXCEPTION TO STATEWIDE RULE 32 FOR VARIOUS LEASES, VARIOUS WELLS IN THE EAGLEVILLE (EAGLE FORD-1) FIELD, ATASCOSA, LA SALLE, AND MCMULLEN COUNTIES, TEXAS**

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**HEARD BY:** Administrative Law Judge - Lynn Latombe  
Technical Examiner - Richard Eyster

**DATE OF HEARING:** January 18, 2019

**APPEARANCES:** **REPRESENTING:**

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**APPLICANT:**

George C. Neale  
Rick Johnston, P.E.  
Kimmy Watson

Carrizo (Eagle Ford) LLC

**EXAMINERS' REPORT AND RECOMMENDATION**

**STATEMENT OF THE CASE**

Pursuant to Statewide Rule 32 (16 Tex. Admin. Code §3.32) Carrizo (Eagle Ford) LLC ("Carrizo") requests an exception to flare gas from twenty-four (24) discrete central production facilities ("CPF") in the Eagleville (Eagle Ford-1) Field in Atascosa, La Salle and McMullen Counties, Texas.

This application was unopposed and the examiners recommend approval.

**DISCUSSION OF EVIDENCE**

Statewide Rule 32 governs the utilization of gas well gas and casinghead gas produced by oil and gas wells under the jurisdiction of the Railroad Commission of Texas ("Commission"). Specifically, Rule 32(h) provides that an exception to flare natural gas in volumes greater than 50 MCFPD per oil lease or commingle point may be granted administratively for a period up to 180 days. Beyond that, Statewide Rule 32(h) provides that exceptions shall be granted only in a final order signed by the Commission. Therefore,

in the context of the subject application, Carrizo is requesting an exception to flare casinghead gas produced from flare points on an intermittent basis as provided by Statewide Rule 32(h). Carrizo had previously received approval for flaring exceptions for 43 central processing facilities from this docket in Docket No. 01-0302995, but many of those wells have been sold to other operators. Carrizo is therefore applying for a total of 24 flare points, which are located in a four-county area in the Eagle Ford Shale region. Of those 24 CPFs, 23 of them are renewals, and one CPF, the Brown Trust 90 CPF, has exhausted its administrative exception. Carrizo therefore seeks an exception by final order for all 24 flare points.

The requested maximum daily flare volumes range from 200 MCF/D to 10,000 MCF/D, and while each of CPFs are connected to pipelines, Carrizo has found that occasional flaring is necessary due to operational upsets, such as the following: high gas pipeline pressure, rejection by the pipeline via slam valves when the market gas does not meet pipeline spec profile, abnormally low or high suction pressure, high liquid scrubber levels, compressor valve issues, improper coolant levels, compressor loss, excessive hydrates, excessive vibration or overspeed by engines or compressors, load control, and electrical control system failure. Carrizo is selling the vast majority of the gas it produces at the subject facilities, and it has taken several steps to mitigate the need to flare the gas. However, it believes the requested exception to flare is necessary due to continued capacity issues, as well as the aforementioned non-routine issues.

The existing flaring authority for the 23 renewal CPFs expired on January 22, 2019. The administrative flaring authority for the Brown Trust 90 CPF expired on November 4, 2018. On November 6, 2018, the Commission received a request for hearing from Carrizo to extend its current flaring exceptions. Because the Brown Trust 90 CPF had not fully utilized all of its allotted flaring days, Carrizo prepared and submitted a late-filed exhibit showing that the Commission had granted an administrative extension of the flaring exception. The expiration date for the Brown Trust 90 CPF was extended until January 18, 2019, making the request for hearing timely.

For the 23 renewal CPFs, Carrizo requests to extend the current Statewide Rule 32 exception for a period of two years, from January 23, 2019, to January 23, 2021, for the maximum daily volumes listed in Appendix A.

Carrizo agreed, that pursuant to the provisions of Texas Government Code §2001.144(a)(4)(A), the Final Order in this matter shall be effective on the date a Master Order relating to the Final Order in this matter is signed.

**FINDINGS OF FACT**

1. Notice of this hearing was given to current operators in the subject field at least ten days prior to the date of hearing. There were no protests to the application.
2. On November 6, 2018, the Commission received a hearing request from Carrizo for an exception to Statewide Rule 32 for various wells.
3. The wells in the subject application are completed in the Eagleville (Eagle Ford-1) Field, in Atascosa, La Salle and McMullen Counties, Texas.
4. Carrizo requests an exception to Statewide Rule 32 for a period of two years for a total of 24 flare points.
5. The subject leases, tank batteries, and central processing facilities are currently connected to a gas gathering system.
6. Carrizo is selling the vast majority of the gas it produces at the subject facilities, and it has taken steps to mitigate the need to flare the gas. However, the exception to Rule 32 is necessary due to multiple continuing issues.
7. Carrizo agreed that pursuant to the provisions of Texas Government Code §2001.144(a)(4)(A), the Final Order in this matter shall be effective on the date a Master Order relating to the Final Order in this matter is signed.

**CONCLUSIONS OF LAW**

1. Proper notice was given to all persons legally entitled to notice.
2. All things have occurred or have been accomplished that are necessary to give the Commission jurisdiction in this matter.
3. Title 16, Texas Administrative Code 3.32(h)(4) provides for an exception for more than 180 days and for volumes greater than 50 MCF/D.
4. Pursuant to §2001.144(a)(4)(A) of the Texas Government Code, and the consent of the applicant, the Final Order in this matter is effective when a Master Order relating to the Final Order in this matter is signed on March 26, 2019.

EXAMINERS' RECOMMENDATION

Based on the above findings of fact and conclusions of law, the examiners recommend approval of the requested exception to Statewide Rule 32 for the twenty-four (24) flare points for the time durations set forth in Appendix A, and in the attached order, as requested by Carrizo.

Respectfully submitted,

Lynn Latombe  
Administrative Law Judge

Richard Eyster  
Technical Examiner

**APPENDIX A**  
**Docket # 01-316357**

Permit #	Lease Drilling Permit Commingle Permit Plant # / RRC ID	Lease Name or Facility/Flare Point Name	Permit Start Date	Permit End Date	Maximum Flare Volume (MCF/Day)	Additional Information/Notes (i.e. Well Nos., Lat/Long, etc.)
23951	5472	Arnold 10 CPF	1/23/19	1/23/21	5,500	28.542086 N -99.288892 W
23952	5645	Bear Clause CPF	1/23/19	1/23/21	5,400	28.495890 N -99.199980 W
23954	15756	Brown Trust CPF	1/23/19	1/23/21	9,500	28.466323 N -99.117650 W
23956	17343	Cadenhead CPF	1/23/19	1/23/21	1,000	28.533664 N -99.193811 W
23957	5602	Crawford CPF	1/23/19	1/23/21	2,500	28.635566 N -99.192946 W
23959	5543	Gardendale CPF	1/23/19	1/23/21	5,500	28.489527 N -99.231416 W
23961	17545	Gierisch CPF	1/23/19	1/23/21	3,000	28.509715 N -99.216862 W
23963	5996	GSH CPF	1/23/19	1/23/21	5,600	28.671242 N -98.413373 W
23964	5401	Hardin Poenisch CPF	1/23/19	1/23/21	2,100	28.642662 N -98.455709 W
23965	17695	Irvin 10 CPF	1/23/19	1/23/21	5,000	28.533556 N -99.038241 W
23966	5517	Irvin 100 CPF	1/23/19	1/23/21	5,000	28.568428 N -98.964659 W
23967	5719	Irvin 90 CPF	1/23/19	1/23/21	5,400	28.564410 N -98.972271 W
23968	16622	Jasik CPF	1/23/19	1/23/21	5,000	28.483024 N -99.342339 W
23969	15873	Jennings CPF	1/23/19	1/23/21	200	28.651249 N -99.129834 W
23981	5540	Perrigo Witherspoon CPF	1/23/19	1/23/21	4,000	28.599962 N -99.158832 W
23985	5400	J Rayes CPF	1/23/19	1/23/21	7,700	28.654198 N -98.472909 W
23987	5646	Seal Lehman CPF	1/23/19	1/23/21	6,000	28.591001 N -99.166895 W
23989	5402	Tag CPF	1/23/19	1/23/21	3,270	28.655257 N -98.435127 W
23992	5516	Winfield CPF	1/23/19	1/23/21	4,800	28.549671 N -99.269954 W
24082	5835	Pena CPF	1/23/19	1/23/21	8,000	28.511122 N -99.264845 W
27637	5890	West Pena CPF	1/23/19	1/23/21	8,000	28.50916 N -99.27893 W
27868	5985	Millet CPF	1/23/19	1/23/21	5,000	28.5843 N -99.2100 W
28304	18854	Burns Ranch CPF	1/23/19	1/23/21	5,000	28.6142 N -99.0946 W
34096	6086	Brown Trust 90 CPF	1/18/19	1/18/21	10,000	28.476757 N -99.084491 W

RAILROAD COMMISSION OF TEXAS  
HEARINGS DIVISION

OIL AND GAS DOCKET NO. 01-0316357: THE APPLICATION OF CARRIZO (EAGLE FORD) LLC FOR AN EXCEPTION TO STATEWIDE RULE 32 FOR VARIOUS LEASES, VARIOUS WELLS IN THE EAGLEVILLE (EAGLE FORD-1) FIELD, ATASCOSA, LA SALLE AND MCMULLEN COUNTIES, TEXAS

FINAL ORDER

The Commission finds that after statutory notice in the above-numbered docket heard on January 18, 2019, the presiding Technical Examiner and Administrative Law Judge (collectively, "Examiners"), have made and filed a report and recommendation containing findings of fact and conclusions of law, for which service was not required; that the proposed application is in compliance with all statutory requirements; and that this proceeding was duly submitted to the Railroad Commission of Texas at conference held in its offices in Austin, Texas.

The Commission, after review and due consideration of the Examiners' report and proposal for decision, the findings of fact and conclusions of law contained therein, and any exceptions and replies thereto, hereby adopts as its own the findings of fact and conclusions of law contained therein, and incorporates said findings of fact and conclusions of law as if fully set out and separately stated herein.

Therefore, it is **ORDERED** by the Railroad Commission of Texas that Carrizo (Eagle Ford) LLC is hereby granted an exception to Statewide Rule 32 for the twenty-four flare points identified on Appendix A attached hereto, Eagleville (Eagle Ford) Field, in Atascosa, La Salle and McMullen Counties, Texas. Carrizo (Eagle Ford) LLC is authorized to flare up to the maximum daily total volume of casinghead gas and time period for each flare point as listed in Appendix A.

The authority is granted, provided all production is reported on the appropriate Commission forms. The operator shall file the Statewide Rule 32 Exception Data Sheet for each flare point identified in Appendix A, and shall file at the same time, the appropriate Commission required administrative Statewide Rule 32 Exception gas flaring fee; provided, however, that each Statewide Rule 32 Exception Data Sheet need not reflect volumes of gas to be flared at the flare point identified, but instead the operator shall attach a copy of this final order, including Appendix A.

Done this 26<sup>th</sup> day of March, 2019.

RAILROAD COMMISSION OF TEXAS

(Order approved and signatures affixed by Hearings Divisions' Unprotested Master Order dated March 26<sup>th</sup>, 2019.)

**APPENDIX A**  
**Docket # 01-316357**

Permit #	Lease Drilling Permit Commingle Permit Plant # / RRC ID	Lease Name or Facility/Flare Point Name	Permit Start Date	Permit End Date	Maximum Flare Volume (MCF/Day)	Additional Information/Notes (i.e. Well Nos., Lat/Long, etc.)
23951	5472	Arnold 10 CPF	1/23/19	1/23/21	5,500	28.542086 N -99.288892 W
23952	5645	Bear Clause CPF	1/23/19	1/23/21	5,400	28.495890 N -99.199980 W
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27868	5985	Millet CPF	1/23/19	1/23/21	5,000	28.5843 N -99.2100 W
28304	18854	Burns Ranch CPF	1/23/19	1/23/21	5,000	28.6142 N -99.0946 W
34096	6086	Brown Trust 90 CPF	1/18/19	1/18/21	10,000	28.476757 N -99.084491 W

## LDAR Inspection Form

Workflow ID: 1644

## A. General Information

## Key Information:

Area: Eagle Ford  
Facility Name: JENNINGS CPF  
Inspection Date 15 Mar 2018 02:50 pm

## Inspection Type:

Inspection Type: N/A  
Inspection Frequency: Quarterly  
Additional Inspection Type? No

## Supplementary Information:

Type of Monitoring Tool: IR Camera? (check if yes) No  
Type of Monitoring Tool: Method 21? (check if yes) No  
Start Time: 14:50:00  
Inspector Name: Gasch, Coral  
Off-Site Wells Present? Yes  
Off-Site Wells Inspected? Yes  
Were there any leaks detected at the time of inspection? No

## B. List of Components Unsafe to Monitor

## All Components

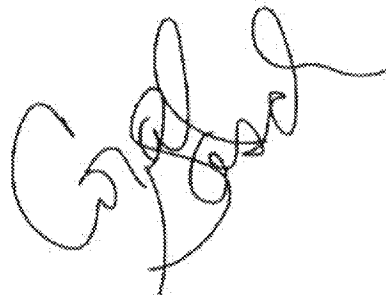
Are there any equipment components unsafe to monitor? No

## C. Signature

Please attach signature to indicate that information provided is both accurate and complete. Signatures Attached  
End Time: 15:11:00

## Incident Photos

Please attach signature to indicate that information provided is both accurate and complete.



## LDAR Inspection Form

Workflow ID: 1693

## A. General Information

## Key Information:

Area: Eagle Ford  
Facility Name: JENNINGS CPF  
Inspection Date 17 Apr 2018 03:10 pm

## Inspection Type:

Inspection Type: N/A  
Inspection Frequency: Quarterly  
Additional Inspection Type? No

## Supplementary Information:

Type of Monitoring Tool: IR Camera? (check if yes) Yes  
Type of Monitoring Tool: Method 21? (check if yes) No  
Start Time: 15:10:00  
Inspector Name: Gasch, Coral  
Off-Site Wells Present? Yes  
Off-Site Wells Inspected? Yes  
Were there any leaks detected at the time of inspection? No

## B. List of Components Unsafe to Monitor

## All Components

Are there any equipment components unsafe to monitor? No

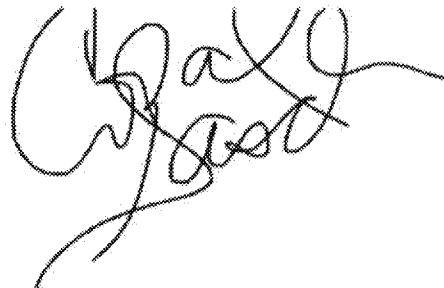
## C. Signature

Please attach signature to indicate that information provided is both accurate and complete. Signatures Attached

End Time: 15:31:00

## Incident Photos

Please attach signature to indicate that information provided is both accurate and complete.



## LDAR Inspection Form

Workflow ID: 2748

## A. General Information

## Key Information:

Area: Eagle Ford  
Facility Name: JENNINGS CPF  
Inspection Date 27 Dec 2018 09:48 am

## Inspection Type:

Inspection Type: N/A  
Inspection Frequency: Quarterly  
Additional Inspection Type? No

## Supplementary Information:

Type of Monitoring Tool: IR Camera? (check if yes) Yes  
Type of Monitoring Tool: Method 21? (check if yes) No  
Start Time: 09:49:00  
Inspector Name: Gasch, Coral  
Off-Site Wells Present? Yes  
Off-Site Wells Inspected? Yes  
Were there any leaks detected at the time of inspection? No

## B. List of Components Unsafe to Monitor

## All Components

Are there any equipment components unsafe to monitor? No

## C. Signature

Please attach signature to indicate that information provided  
is both accurate and complete. Signatures Attached

End Time: 10:10:00

## Incident Photos

Please attach signature to indicate that information provided  
is both accurate and complete.



# LDAR Inspection Form

## General Information

Area	Facility	Lease ID/API
EAGLEFORD SHALE	Jennings No. 10-H Production Facility	15873
Inspection Type	Inspection Start Date/Time	Inspection End Date/Time
N/A	2/25/2019 8:45:00 PM	2/25/2019 11:20:00 AM
Inspection Frequency	Inspector	
Quarterly	Coral Gasch	
Inspector Training	n/a	Latitude: 28.650886 Longitude: -99.130486
Thermographer Monitoring Instrument	FLIR GF 320 Camera	Verification of IR Camera Date 2/25/2019

## Supplementary Information

Type Of Monitoring Tool Camera	<input checked="" type="checkbox"/>	Closure Date	
Type Of Monitoring Tool Method 21	<input type="checkbox"/>	Inspection Comments	Upon arrival to location a vacuum truck was load produced water. I noticed the tanks venting and discovered 2 hatches were not latched properly. I closed the hatches and rescanned after the driver finished his load. The thief hatch on oil tank 1 and a check valve on the vent line to the flare are venting. Inspected location with the Foreman Vicente Gonzalez.
Off Well Site Present	Yes		
Off Site Wells Inspected	Yes	Weather	Temperature
		Clear	63
Any Deviations from Monitoring Plan?	<input checked="" type="radio"/> No <input type="radio"/> Yes		Wind Speed
			0.50

## Leaks Detected

Were Leaks Detected? ☐ No ☒ Yes

Leak		
Equipment Type	Tank	Equipment Details
Component Type	Hatch	hatch on oil tank 1
Number of Components	1	Method 21 (ppm)
Comments		

Leak		
Equipment Type	Flare	Equipment Details
Component Type	Valve	check valve on vent line
Number of Components	1	Method 21 (ppm)
Comments		

### Workorder Links

WO-1112 Hatch  
WO-1113 Hatch

### Attachments

## Remarks

Message

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**From:** Telleck, Jack [Telleck.Jack@epa.gov]  
**Sent:** 11/7/2019 5:31:54 PM  
**To:** Bammel, Brandon [Bammel.Brandon@epa.gov]; Larson, Darrin [Larson.Darrin@epa.gov]; Thompson, Steve [thompson.steve@epa.gov]  
**Subject:** question from TCEQ about 2019 Texas Flyovers

As of now, Michael Miller has read-only rights to the TX Flyover SharePoint site. Do you want me to give him and his two coworkers edit rights, so they can add stuff to the site (and change stuff already there)?

Jack Telleck  
Program Specialist  
U.S. Environmental Protection Agency – Region 6  
Enforcement and Compliance Assurance Division  
Air Toxics Enforcement (Mail Code: ECDAT)  
214-665-9732

---

**From:** Michael Miller <Michael.Miller@Tceq.Texas.Gov>  
**Sent:** Thursday, November 7, 2019 11:29 AM  
**To:** Telleck, Jack <Telleck.Jack@epa.gov>  
**Cc:** Keith Sheedy <keith.sheedy@tceq.texas.gov>; Melissa Keller <melissa.keller@tceq.texas.gov>  
**Subject:** RE: Telleck, Jack is inviting you to collaborate on 2019 Texas Flyovers

Hello Jack,

I am copying Keith Sheedy, who is also a flyover and oil and gas contact in the TCEQ Program Support Section as well Melissa Keller, our division level Special Assistant. Would you like us to start placing TCEQ flyover documents and information in the library as well?

Thanks,  
Mike

Mike Miller  
Air Program Liaison  
Texas Commission on Environmental Quality  
Office of Compliance and Enforcement  
(512) 239-0516



**How is our customer service?** Fill out our customer satisfaction survey at [www.tceq.texas.gov/customersurvey](http://www.tceq.texas.gov/customersurvey).

**From:** Telleck, Jack <no-reply@sharepointonline.com>  
**Sent:** Wednesday, November 6, 2019 12:47 PM  
**To:** Michael Miller <Michael.Miller@Tceq.Texas.Gov>

**Cc:** Telleck.Jack@epa.gov

**Subject:** Telleck, Jack is inviting you to collaborate on 2019 Texas Flyovers

Here's the site that Telleck, Jack shared with you.

## Go to 2019 Texas Flyovers

Follow this site to get updates in your newsfeed.



Get the SharePoint mobile app!



grissom 1802h battery2 - Report Created on 10/12/2019 15:38



Comments: PASS

Ending Latitude: 31.9556

Ending Longitude: -104.1018

Altitude: 1,021.4

# Work Order

Work Order #:33427

Brief Description:Grissom 1802H Battery - Vent System Repair

Task Description: Repair Vent System as needed

Equipment Maint ID #:27186

Category:LOE

BOE:0

WO Date:09/06/2019

Sched. Date:

Completed Date:09/24/2019

WO Class:Unplanned

WO Type:Corrective

Job Status:Complete

Downtime:0

Pmid:

Asset Team:NDB-W

Battery Name:Grissom  
1802H Battery

PM Group (Area):

Manufacturer:

Battery Type:Oil

Enerlia Battery ID:26502739

Parent Type:Battery

Equipment Type:Battery

Serial No.:

Diameter (FT):0

Height (FT):0

Parent ID:

Work Order Comments:Serviced all the centers from thief hatches then removed two 4" Jayco vent valves, we installed two Protego vent valves we stay on the location till the job was complete.

Request #:

Requested By:Gary Geeslin

Req. E-mail:ggeeslin@concho.com

Req. Telephone:

CC Relief:

Perform For Type:Employee

Perform For:Concho (Chance Parsons)

Assign To Type:Group

Assign To:Concho (NDB Flare Combustor Service Request)

Work Instruction:Clean and Repair thief hatches as needed and upgrade vent valve to Protego

Meter GPS Location:

Meter Name:

Station ID:

Avg Vol.:

FMP:

Purchaser / Contract Hr.:

Meter Make:

Meter Model:

Meter Ser.#:

City:Salt Flat

County:

Culberson

State:TX

Zip:79847

City FIPS:109

State FIPS:48

FOR SPILL PREVENTION?:NO  
Is This An IDLH Facility?:NO  
Well Shut In For This Request  
Only: NO

Oil:0

Water:0

Gas:0

Quad O/Oa Facility?:YES

Driving Directions:

Insp. Round WO#:N/A

Tube Fitting:

Tube I.D.:

Tube Serial #:

Flow Cond. Make & Model:

Document Attached?: ☐

Requires Follow Up?: ☐

# Work Order

Work Order #:30273  
Brief Description: LeakScout Inspection  
Task Description: LeakScout Inspection  
Equipment Maint ID #:27186  
Category: LOE  
BOE: 0  
WO Date: 10/04/2019  
Sched. Date:  
Completed Date: 10/12/2019  
  
WO Class: Planned  
WO Type: Preventative  
Job Status: Complete  
Downtime: 0

Work Order Comments: Pass  
Request #:  
Requested By: Jennifer Knowlton  
Req. E-mail: jknowlton@concho.com  
Req. Telephone: 575-748-1570  
CC Relief:

Perform For Type: Employee

Perform For: Concho (Chance Parsons)  
Assign To Type: Contractor  
Assign To: LeakScout (LeakScout)  
Work Instruction: Inspect Bty for Emissions  
Meter GPS Location:

Meter Name:  
Station ID:  
Avg Vol.:  
FMP:  
Purchaser / Contract Hr.:  
Meter Make:  
Meter Model:  
Meter Ser. #:

Pmid:  
Asset Team: NDB-W  
Battery Name: Grissom 1802H Battery  
PM Group (Area):  
Manufacturer:  
Battery Type: Oil  
Enertia Battery ID: 26502739  
Parent Type: Battery  
Equipment Type: Battery  
Serial No.:  
Diameter (FT): 0  
Height (FT): 0  
Parent ID:

City: Salt Flat  
County: Culberson  
State: TX  
Zip: 79847  
City FIPS: 109  
State FIPS: 48

FOR SPILL PREVENTION?:  
Is This An IDLH Facility?:  
Well Shut In For This Request  
Only:

Oil: na  
Water: na  
Gas: NA

Quad O/Oa Facility?:

Driving Directions:  
Insp. Round WO#: N/A  
Tube Fitting:  
Tube I.D.:  
Tube Serial #:  
Flow Cond. Make & Model:

Document Attached?: ☐  
Requires Follow Up?: ☐



December 13, 2019

Re: Observed Emissions at COG Operating LLC Facilities in the Permian Basin

Brandon Bammel  
USEPA Region 6  
Dallas, Texas 75270

Delivered via email: [bammel.brandon@epa.gov](mailto:bammel.brandon@epa.gov)

Dear Mr. Bammel,

COG Operating LLC ("COG") is responding to USEPA Region 6's letter dated November 26, 2019 requesting information on three identified sites. The letter provided videos from overflights on September 17, September 20, and September 25, 2019 using Optical Gas Imaging ("OGI") technology.

COG personnel visited all three locations. Two of the three locations listed in your November 26, 2019 letter were erroneously identified as COG locations. Site observations matched the images in the provided video for both of these non-COG locations.

- TXL 31 Battery is operated by Mewbourne Oil Company (please see enclosed Photo 1)
- Caldwell State 71 5 1H is operated by Vaquero Midstream (please see enclosed Photo 2)

Therefore, the remainder of this response is focused on the Grissom 1802H Battery, which is owned and operated by COG. Emissions from this facility are permitted pursuant to Texas Commission on Environmental Quality ("TCEQ") Air Permit By Rule ("PBR") Number 135376. The PBR application and TCEQ approval letter for the facility are enclosed with this letter as requested.

COG identified the emissions leak from the storage tank at the Grissom 1802H Battery on 9/5/2019 during a daily audio/visual/olfactory ("AVO") check. An internal work order for repair was dispatched, and two malfunctioning Jayco valves were identified during the repair work. The Jayco valves were replaced with Protego valves on 9/24/2019. The relevant work orders are attached for your reference.

The Grissom 1802H Battery was surveyed by helicopter with OGI technology on 10/12/2019 and showed no leaks (see attached still image from OGI survey).

COG is proactive in managing its facilities to minimize emissions leaks and expeditiously repair those leaks. Our leak detection practices caught the leak in a timely fashion and we diligently implemented a repair process to address the source of tank emissions.

If you have any questions regarding this information, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads "Jennifer Knowlton".

Jennifer Knowlton  
Environmental Manager

Message

---

**From:** Lauren Simoneaux [lsimoneaux@tealnr.com]  
**Sent:** 3/5/2019 9:16:39 PM  
**To:** Bammel, Brandon [Bammel.Brandon@epa.gov]  
**Subject:** RE: Teal Natural Resources  
**Attachments:** AIR NSR\_108062\_Permits\_Public\_20130101\_Agency Review\_1105358\_(1).pdf

Attached permits- if you have other questions please contact Melissa Dungan [Melissa.dungan@entechservice.com](mailto:Melissa.dungan@entechservice.com)

---

**From:** Bammel, Brandon <Bammel.Brandon@epa.gov>  
**Sent:** Friday, March 1, 2019 8:29 AM  
**To:** Lauren Simoneaux <lsimoneaux@tealnr.com>  
**Subject:** RE: Teal Natural Resources

Lauren,

I received your voicemail from yesterday. I am following up with an email since I am away from my work desk at the moment. Thank for confirming that you watched the video and identified the site. I appreciate that. Can you please follow up with the permit, permit application and corrective action/measures taken at the facility in the video? If you are able to send everything by email that would be great.

If you have any questions please let me know.

Thanks,

Brandon Bammel

---

**From:** Lauren Simoneaux <lsimoneaux@tealnr.com>  
**Sent:** Friday, February 22, 2019 7:42 AM  
**To:** Bammel, Brandon <Bammel.Brandon@epa.gov>  
**Subject:** Re: Teal Natural Resources

No but 9:30 will- I'll give you a call then if that works for you

Get [Outlook for iOS](#)

---

**From:** Bammel, Brandon <bammel.brandon@epa.gov>  
**Sent:** Friday, February 22, 2019 7:26 AM  
**To:** Lauren Simoneaux  
**Subject:** RE: Teal Natural Resources

Will 830am work with your schedule?

Thanks,

Brandon

---

**From:** Lauren Simoneaux <lsimoneaux@tealnr.com>  
**Sent:** Thursday, February 21, 2019 3:26 PM

**To:** Bammel, Brandon <Bammel.Brandon@epa.gov>

**Subject:** RE: Teal Natural Resources

That will work-

---

**From:** Bammel, Brandon <Bammel.Brandon@epa.gov>

**Sent:** Thursday, February 21, 2019 3:25 PM

**To:** Lauren Simoneaux <lsimoneaux@tealnr.com>

**Subject:** RE: Teal Natural Resources

Lauren,

I apologize about the phone tag. I happen to be taking training today. I can call you tomorrow morning to discuss the letter if that works for you?

Thanks,

Brandon Bammel

---

**From:** Lauren Simoneaux <lsimoneaux@tealnr.com>

**Sent:** Thursday, February 21, 2019 3:23 PM

**To:** Bammel, Brandon <Bammel.Brandon@epa.gov>

**Subject:** Teal Natural Resources

Good afternoon Brandon,

It seems we are playing some phone tag- please give me a call when you have the chance to discuss this letter we received in the mail from you about our Heard Ranch field.

Thanks,



**Lauren Simoneaux**  
**Operations Engineer**

214-489-7145

8235 Douglas Ave, Ste 1100

Dallas, TX 75225



# New Source Permits

AIR RN OT 022

Air #: 106596786 108062

File Type: Permits

Volume: 001

Date: 1/1/2013 -

Files appearing on this roll of microfilm/electronic image were filmed/scanned as received and per instructions from the Texas Commission on Environmental Quality's Records Management Coordinator, Kate Fitzpatrick.

# Poor Quality Original

Record Series: *AIR RN OT 022*  
Primary Filing ID: *106596786*  
Secondary Filing ID: *108062*  
Document Date: *1-1-2013*  
Item Barcode: *100683107*

**THE FOLLOWING DOCUMENTS HAS BEEN IMAGED TO THE HIGHEST  
QUALITY AVAILABLE.**

**THE POOR QUALITY DOCUMENTS HAVE BEEN IDENTIFIED BY A  
“BEST POSSIBLE IMAGE” STAMP.**

Box Barcode:

EVERYTHING  
BELOW THIS  
DOCUMENT WAS  
SUBMITTED BY  
THE PROGRAM  
AREA AND SHOULD  
REMAIN AS IS  
WITHIN THE FILE

06/04/2014 -----NSR IMS - PROJECT RECORD -----

PROJECT#: 211476 PERMIT#: 108062 STATUS: PENDING DISP CODE: \_\_\_\_\_  
 RECEIVED: 05/28/2014 PROJTYPE: REVISION AUTHTYPE: PBR ISSUED DT: \_\_\_\_\_  
 RENEWAL: \_\_\_\_\_  
 PROJECT ADMIN NAME: UPDATED PRODUCTION EQUIPMENT AND DAILY PRODUCTION RATES  
 PROJECT TECH NAME: JP HEARD BOWER CDP 1

Assigned Team: RULE REG SECTION

STAFF ASSIGNED TO PROJECT:  
 GLASPIE-FELIX, SHELIA - REVIEWR1\_2 - AP INITIAL REVIEW  
 TEAM LEADER, RR *Chino* - REVIEW ENG - RULE REG SECTION

CUSTOMER INFORMATION (OWNER/OPERATOR DATA)  
 ISSUED TO: AURORA USA DEVELOPMENT LLC  
 COMPANY NAME: Aurora USA Development, LLC  
 CUSTOMER REFERENCE NUMBER: CN604311951

REGULATED ENTITY/SITE INFORMATION  
 REGULATED ENTITY NUMBER: RN106596786 ACCOUNT:  
 PERMIT NAME: JP HEARD BOWER CDP 1

REGULATED ENTITY LOCATION: FR FM 1099 I 37 EXIT 88 INTX TAKE FM 1099 W 0.5 MI TURN L ON ALT HWY 281 S GO 3.3  
 MI S TO SITE ON R  
 REGION 13 - SAN ANTONIO NEAR CITY: CAMPBELLTON COUNTY: ATASCOSA

CONTACT DATA

CONTACT NAME: MR JOHN CAMPBELL CONTACT ROLE: RESPONSIBLE OFFICIAL  
 JOB TITLE: VICE PRESIDENT OPERATIONS ORGANIZATION: AURORA USA DEVELOPMENT LLC  
 MAILING ADDRESS: 1200 SMITH ST STE 2300, HOUSTON, TX, 77002-4507  
 PHONE: (713) 402-1938 Ext: 0  
 FAX: (713) 357-9674 Ext: 0  
 EMAIL: JCAMPBELL@AURORAOAG.COM.AU

CONTACT NAME: MR MITCH KILLOUGH CONTACT ROLE: TECHNICAL CONTACT  
 JOB TITLE: ENVIRONMENTAL CONSULTANT ORGANIZATION: NEW TECH CARR ENVIRONMENTAL GROUP  
 MAILING ADDRESS: 911 REGIONAL PARK DR, HOUSTON, TX, 77060-3942  
 PHONE: (281) 872-9300 Ext: 0  
 FAX: (281) 872-4521 Ext: 0  
 EMAIL: MKILLOUGH@NTCEG.COM

PROJECT NOTES:

05/29/2014 CR/SOS/DFC DONE 5/29/14 - NOT ON APWL  
 06/04/2014 REQUESTED SIGNED PI7/CDF - RECEIVED EMAILED DOCUMENTS - ORIGINALS TO BE MAILED IN PER TC - RECEIVED  
 ORIGINAL SIGNATURE PAGES FOR CDF/PI-7 - FORWARDED TO RULES & REG 6/4/14

PERMIT NOTES:

FEE:

Reference	Fee Receipt Number	Amount	Fee Receipt Date	Fee Payment Type
207440		100.00		ePAY

TRACKING ELEMENTS:

TE Name	Start Date	Complete Date
APIRT RECEIVED PROJECT (DATE)	05/28/2014	
ADMIN DEFICIENCY CYCLE	05/29/2014	06/03/2014
CENTRAL REGISTRY UPDATED	05/29/2014	05/29/2014
APIRT TRANSFERRED PROJECT TO TECHNICAL STAFF (DATE)	06/03/2014	

*Original  
Signature  
pages  
attached*  
  
*Shelia G.F  
7/2/10*

**RECEIVED**

AUG 18 2014

**NEW  
CENTRAL FILE ROOM**

DEFICIENCY CYCLE  
ENGINEER INITIAL REVIEW COMPLETED (DATE)  
ENHANCED ADMINISTRATIVE OR APPLICATIONS REVIEW (EAR)  
ENHANCED ADMINISTRATIVE OR APPLICATIONS REVIEW (EAR)  
PEER / MANAGER REVIEW PERIOD  
PROJECT RECEIVED BY ENGINEER (DATE)

---

Permit Unit Type:

---

PROJECT RULES:

Unit Desc	Rule Desc	Request Type	On Application	Approve
OIL AND GAS PRODUCTION FACILITIES	106.352 2011-FEB-27 -	ADD	Y	APPROVE
FLARES	106.492 -	ADD	Y	APPROVE
ENGINES AND TURBINES	106.512 -	ADD	Y	APPROVE

PERMIT RULES:

Unit Desc	Rule Desc	Start Date	End Date
FLARES	106.492	05/14/2013	
OIL AND GAS PRODUCTION FACILITIES	106.352 2011-FEB-27	05/14/2013	
ENGINES AND TURBINES	106.512	05/14/2013	

---

PROJECT ATTRIBUTES:

Attributes	Value
PROJECT POINT	

CEMATELITE ROOM  
106.352  
05/14/2013  
RECEIVED

24. Street Address of the Regulated Entity: <i>(No P.O. Boxes)</i>	Approximately 4.3 miles south of Campbellton, Texas.			
	City	State	ZIP	ZIP + 4
	Campbellton	Texas	78008	
25. Mailing Address:	1200 Smith Street, Suite 2300			
	City	State	ZIP	ZIP + 4
	Houston	Texas	77002	
26. E-Mail Address:	jcampbell@auroraoag.com.au			
27. Telephone Number	28. Extension or Code	29. Fax Number <i>(if applicable)</i>		
(713) 402-1938		(713) 357-9674		
30. Primary SIC Code (4 digits)	31. Secondary SIC Code (4 digits)	32. Primary NAICS Code (5 or 6 digits)	33. Secondary NAICS Code (5 or 6 digits)	
1311		211111		
34. What is the Primary Business of this entity? <i>(Please do not repeat the SIC or NAICS description.)</i>				
Oil and gas production facility				

Questions 34 – 37 address geographic location. Please refer to the instructions for applicability.

35. Description to Physical Location:	From FM 1099/I-37 (exit 88) intersection, take FM 1099 west 0.5 mile. Turn left on Alt Hwy 281 south and travel 3.3 miles south to site on right.			
36. Nearest City:	County:	State:	Nearest ZIP Code:	
Campbellton	Atascosa	Texas	78008	
37. Latitude (N) In Decimal:	28.6859	38. Longitude (W) In Decimal:	-98.2928	
Degrees	Minutes	Seconds	Degrees	Minutes

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form or the updates may not be made. If your Program is not listed, check other and write it in. See the Core Data Form instructions for additional guidance.

<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Industrial Hazardous Waste	<input type="checkbox"/> Municipal Solid Waste
<input checked="" type="checkbox"/> New Source Review – Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS	<input type="checkbox"/> Sludge Tires
106.352(I)				
<input type="checkbox"/> Stormwater	<input type="checkbox"/> Title V – Air	<input type="checkbox"/> Used Oil	<input type="checkbox"/> Utilities	<input type="checkbox"/> Waste Water
<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:	<input type="checkbox"/> Other:	<input type="checkbox"/> Other:

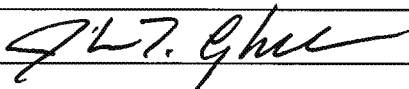
#### SECTION IV: Preparer Information

40. Name:	Mitch Killough	41. Title:	Environmental Consultant
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(281) 872-9300		(281) 872-4521	mkillough@ntceg.com

#### SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 9 and/or as required for the updates to the ID numbers identified in field 39.

*(See the Core Data Form instructions for more information on who should sign this form.)*

Company:	Aurora USA Development, LLC	Job Title:	Vice President - Operations
Name <i>(In Print)</i> :	John Campbell	Phone:	
Signature:		Date:	JUN 04 2014

HAND-DELIVERED



**Texas Commission on Environmental Quality**  
**Form PI-7-CERT**  
**Certification and Registration for Permits by Rule**

**VII. SIGNATURE FOR CERTIFICATION AND REGISTRATION**

The signature below indicates that the Responsible Official has knowledge of the facts herein set forth and that the same are true, accurate, and complete to the best of my knowledge and belief. By this signature, the maximum emission rates listed on this certification reflect the maximum anticipated emissions due to the operation of this facility and all representations in this certification of emissions are conditions upon which the facilities and sources will operate. It is understood that it is unlawful to vary from these representations unless the certification is first revised. The signature certifies that to the best of the Responsible Official's knowledge and belief, the project will satisfy the conditions and limitations of the indicated exemption or permit by rule and the facility will operate in compliance with all regulations of the Texas Commission on Environmental Quality and with Federal U.S. Environmental Protection Agency regulations governing air pollution. The signature below certifies that, based on information and belief formed after reasonable inquiry, the statements and information above and contained in the attached document(s) are true, accurate, and complete. **If you questions on how to fill out this form or about air quality permits. Please call (512) 239-1250.** Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, call (512) 239-3282.

SIGNATURE: \_\_\_\_\_

(ORIGINAL SIGNATURE REQUIRED)

5/28/14  
DATE



From: (713) 401-1676  
 Jessica McGlone  
 Aurora USA Oil & Gas, Inc.  
 1200 Smith  
 Suite 2300  
 Houston, TX 77002

Origin ID: EDXA



J14101402070326

SHIP TO: (512) 239-1210  
**Shelia Glaspie-Felix**  
**APD - APIRT**  
**MC161, Building C**  
**12100 Park 35 Circle**  
**AUSTIN, TX 78753**

BILL SENDER

Ship Date: 03JUN14  
 ActWgt: 1.0 LB  
 CAD: 105471125/NET3490

Delivery Address Bar Code



Ref #  
 Invoice #  
 PO #  
 Dept #

**RECEIVED**

JUN 04 2014

TCEQ MAIL CENTER

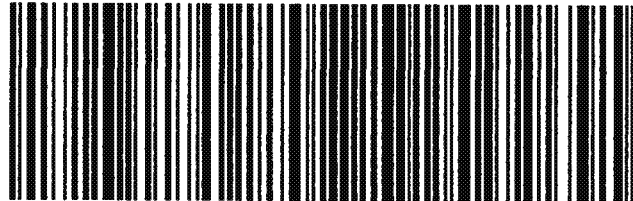
WED - 04 JUN AA

STANDARD OVERNIGHT

TRK# 7701 8051 1574  
 0201

**A8 MMRA****78753**

TX-US

**AUS**

522G3/A260/F220

**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning:** Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on [fedex.com](http://fedex.com). FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Bryan W. Shaw, Ph.D., P.E., *Chairman*  
Toby Baker, *Commissioner*  
Zak Covar, *Commissioner*  
Richard A. Hyde, P.E., *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

August 4, 2014

MR JOHN CAMPBELL  
VICE PRESIDENT OPERATIONS  
AURORA USA DEVELOPMENT LLC  
1200 SMITH ST STE 2300  
HOUSTON TX 77002-4507

Permit by Rule Registration Number:	108062
Location	Fr FM 1099 I 37 Exit 88 Intersection, take FM 1099 W 0.5 miles Turn L on Alt HWY 281 S Go 3.3 miles S to Site on R.
City/County:	Campbellton, Atascosa County
Project Description/Unit:	JP Heard Bower CDP 1
Regulated Entity Number:	RN106596786
Customer Reference Number:	CN604311951
New or Existing Site:	Existing
30 TAC § 106.352(l)	Effective Date: 02/27/2011
30 TAC § 106.492	Effective Date: 09/04/2000
30 TAC § 106.512	Effective Date: 06/13/2001

Aurora USA Development, LLC has certified the emissions associated with the JP Heard Bower CDP 1 under the Permit by Rule(s) stated above.

For rule information see: [www.tceq.texas.gov/permitting/air/nav/numerical\\_index.html](http://www.tceq.texas.gov/permitting/air/nav/numerical_index.html).

The company is also reminded that these facilities may be subject to and must comply with other state and federal air quality requirements. Facility owners or operators must retain records containing sufficient information to demonstrate compliance as required in 30 TAC §106.8.

If you have questions, please contact Mr. Guillermo Reyes, P.E. at (512) 239-5716. This action is taken under the authority delegated by the Executive Director of the TCEQ.

Sincerely,

A handwritten signature in black ink, appearing to read "Anne M. Inman".

Anne M. Inman, P.E., Manager  
Rule Registrations Section  
Air Permits Division

cc: Air Section Manager, Region 13 - San Antonio

Project Number: 211476

Certified Emission Rates  
Registration Number: 108062

This table lists the certified emission rates and all sources of air contaminants on the applicant's property covered by this registration. The emission rates shown are those derived from information submitted as part of the registration for PBR.

ESTIMATED EMISSIONS															
EPN	Emission Source	VOC		NOx		CO		PM <sub>2.5/10</sub>		H <sub>2</sub> S		SO <sub>2</sub>		HAPS**	
		lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
C1	COMPRESSOR ENGINE - CAT G3406 NA (215 hp)	0.53	2.10	0.95	4.15	1.90	8.30	0.05	0.20			<0.01	0.01	0.07	0.08
C2	COMPRESSOR ENGINE - CAT G3304 NA (95 hp)	0.08	0.34	0.15	0.64	0.15	0.64	0.02	0.10					0.03	0.13
C3	COMPRESSOR ENGINE - CAT G3306 NA (145 hp)	0.09	0.38	0.18	0.77	0.21	0.92	0.03	0.13					0.04	0.18
C4	COMPRESSOR ENGINE-CAT G379 NA (330 hp)	0.20	0.86	0.47	2.07	0.43	1.88	0.07	0.30			<0.01	0.01	0.11	0.50
ENG-5	COMPRESSOR ENGINE - BUCKS ENGINE - VORTEC 5.7L (95 hp)	0.17	0.72	0.57	2.49	0.97	4.26	0.02	0.10					0.03	0.13
H1	LINE HEATER	0.01	0.02	0.10	0.43	0.08	0.36	0.01	0.03			0.03	0.11	<0.01	0.01
H2	LINE HEATER	0.01	0.02	0.10	0.43	0.08	0.36	0.01	0.03			0.03	0.11	<0.01	0.01
H3	HEATER TREATER	0.01	0.02	0.10	0.43	0.08	0.36	0.01	0.03			0.03	0.11	<0.01	0.01
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				

ESTIMATED EMISSIONS															
EPN	Emission Source	VOC		NO <sub>x</sub>		CO		PM <sub>2.5/10</sub>		H <sub>2</sub> S		SO <sub>2</sub>		HAPS**	
		lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				
VRU, FL-1	400-BBL WATER TANK	0.01	0.01							<0.01	<0.01			<0.00	<0.01
VRU, FL-1	400-BBL WATER TANK	0.01	0.01							<0.01	<0.01			<0.00	<0.01
VRU, FL-1	400-BBL WATER TANK	0.01	0.01							<0.01	<0.01			<0.01	<0.01
VRU, FL-1	400-BBL WATER TANK	0.01	0.01							<0.01	<0.01			<0.01	<0.01
L1	CONDENSATE LOADOUT	26.77	1.18							<0.01	<0.01			0.33	0.01
CLD-2	CONDENSATE LOADOUT	26.77	1.18							<0.01	<0.01			0.33	0.01
WLD-1	WATER LOADOUT	0.27	0.02							<0.01	<0.01				
WLD-2	WATER LOADOUT	0.27	0.02							<0.01	<0.01				
FUG	FUGITIVES	1.23	5.40							<0.01	<0.01			0.02	0.08
TOTAL EMISSIONS (TPY):			15.06		11.44		0.21		0.92		<0.01		0.36		1.17
MAXIMUM OPERATING SCHEDULE:		Hours/Day		Days/Week		Weeks/Year		Hours/Year		8760					

\* Formaldehyde emissions are included in HAPS emissions

VOC - volatile organic compounds  
NO<sub>x</sub> - total oxides of nitrogen  
CO - carbon monoxide  
PM<sub>10</sub> - particulate matter equal to or less than 10 microns in size  
PM<sub>2.5</sub> - particulate matter equal to or less than 2.5 microns in size  
SO<sub>2</sub> - sulfur dioxide

\*\*Fugitive emissions are an estimate only and should not be considered as a maximum allowable

# TECHNICAL REVIEW: AIR PERMIT BY RULE

<b>Permit No.:</b>	108062	<b>Company Name:</b>	Aurora USA Development, LLC	<b>APD Reviewer:</b>	Mr. Guillermo Reyes, P.E.
<b>Project No.:</b>	211476	<b>Unit Name:</b>	JP Heard Bower CDP1	<b>PBR No(s).:</b>	106.352(l) 02/27/2011 106.492 09/04/2000 106.512 06/13/2001

GENERAL INFORMATION					
<b>Regulated Entity No.:</b>	RN106596786	<b>Project Type:</b>	Permit by Rule Application		
<b>Customer Reference No.:</b>	CN604311951	<b>Date Received by TCEQ:</b>	May 28, 2014		
<b>Account No.:</b>		<b>Date Received by Reviewer:</b>	July 2, 2014		
<b>City/County:</b>	Campbellton, Atascosa County	<b>Physical Location:</b>	fr fm 1099 i 37 exit 88 intx take fm 1099 w 0.5 mi turn l on alt hwy 281 s go 3.3 mi s to site on r		

CONTACT INFORMATION					
<b>Responsible Official/ Primary Contact Name and Title:</b>	John Campbell Vice President Operations	<b>Phone No.:</b> <b>Fax No.:</b>	(713) 402-1938 (713) 357-9674	<b>Email</b> :	JCAMPBELL@AURORA OAG.COM.AU
<b>Technical Contact/ Consultant Name and Title:</b>	Mitch Killough Environmental Consultant	<b>Phone No.:</b> <b>Fax No.:</b>	(281) 872-9300 (281) 872-4521	<b>Email</b> :	MKILLOUGH@NTCEG.C OM

GENERAL RULES CHECK	YES	NO	COMMENTS
Is confidential information included in the application?		X	
Are there affected NSR or Title V permits for the project?		X	
Is each PBR > 25/250 tpy?		X	
Are PBR sitewide emissions > 25/250 tpy?		X	
Are there permit limits on using PBRs at the site?		X	
Is PSD or Nonattainment netting required?		X	
Do NSPS, NESHAP, or MACT standards apply to this registration?	X		NSPS OOOO, MACT ZZZZ
Does NOx Cap and Trade apply to this registration?		X	
Is the facility in compliance with all other applicable rules and regulations?	X		

DESCRIBE OVERALL PROCESS AT THE SITE
<p>The site is an oil and gas production facility consisting of engines, line heaters, heater treater, storage tanks, and loadouts. The site handles natural gas and petroleum liquids that contain 200 parts per million (ppm) hydrogen sulfide (H<sub>2</sub>S); therefore, the site is considered sour. Production enters the site through line heaters (FIN: 1-11, H<sub>2</sub>). From the line heater, the well stream is sent to a high-pressure (HP) separator. From the HP separator, gas is sent to sales; liquids are sent to the low pressure (LP) separator. From the LP separator, gas is sent to the compressor engines (FIN: C1, C2, C3, C4) and liquids are sent to the heater treater (FIN: H3). The majority of the compressed gas is used to increase production by gas lifting. Any remaining gas is sold. From the heater treater, condensate and water are sent to their respective tanks (FIN: TK1, TK2, TK3, TK4, TK5, TK6, TK7, TK8, TK9, TK10, CTK-11, CTK-12, WTK-1, WTK-2, WTK-3, WTK-4). Condensate and water are loaded into a tank trucks (FIN: L1, CLD-2, WLD-1, WLD-2) and transported offsite.</p> <p>Emission controls:</p> <ul style="list-style-type: none"> <li>Emissions from the condensate and water storage tanks are sent to the VRU (EPN: ENG-5: 98% capture efficiency).</li> <li>The VRU is equipped with the following design requirements and documentation will be made available to the TCEQ and/or EPA upon request: Sensing equipment includes pressure sensors and temperature sensors. An appropriately designed bypass system which automatically redirects streams as needed. A compressor capable of varying operating speeds and recovering both wet and dry gas.</li> </ul> <p>Alternate Operating Scenario</p> <ul style="list-style-type: none"> <li>The VRU is down 5% of the year, and the emissions from the condensate and water tank are sent to the flare (EPN: FL-1).</li> <li>The flare is equipped with an automatic igniter.</li> </ul> <p>There are no receptors within a 1/4-mile radius of the site. Emission rates are based on a daily throughput of 120 barrels (bbl) of oil, 0.06 million cubic feet (mmcf) of gas, and 250 bbl of water.</p>

DESCRIBE PROJECT AND INVOLVED PROCESS
<p>The purpose of this submittal is to modify the previous permit authorization (TCEQ Registration No. 108062) for the site. Modifications include updated production equipment and daily production rates.</p> <p>MSS emissions for the site are authorized under 106.359.</p>

# TECHNICAL REVIEW: AIR PERMIT BY RULE

<b>Permit No.:</b>	108062	<b>Company Name:</b>	Aurora USA Development, LLC	<b>APD Reviewer:</b>	Mr. Guillermo Reyes, P.E.
<b>Project No.:</b>	211476	<b>Unit Name:</b>	JP Heard Bower CDP1	<b>PBR No(s):</b>	106.352(l) 02/27/2011 106.492 09/04/2000 106.512 06/13/2001

## TECHNICAL SUMMARY - DESCRIBE HOW THE PROJECT MEETS THE RULES

### 106.352 (Oil and Gas Production Facilities):

- (1) Flares will meet the requirements of 106.492. Engines will meet the requirements of 106.512.
- (2) Site-wide emissions will be less than 250 tpy each of CO and NO<sub>x</sub> and less than 25 tpy of the other contaminants addressed by the rule. See emissions table below.
- (3) The facility handles sour gas and is located more than ¼ mile from any other structure.
- (4) Total emissions of sulfur compounds will not exceed 4.0 lb/hr. The height of each vent emitting vent sulfur compounds will be more than 20 ft.
- (5) Form PI-7CERT was submitted.

### §106.492 Flares

- (1)(A) The company represents that the flare will be equipped with a flare tip designed to provide good mixing with air, flame stability, and a tip velocity less than 60 feet per second (ft/sec) for gases having a lower heating value less than 1,000 British thermal units per cubic foot (Btu/ft<sup>3</sup>) or a tip velocity less than 400 ft/sec for gases having a lower heating value greater than 1,000 Btu/ft<sup>3</sup>.
- (1)(B) The company represents that the flare will be equipped with a continuously burning pilot or other automatic ignition system that assures gas ignition and provides immediate notification of appropriate personnel when the ignition system ceases to function.
- (1)(C) The company represents that the flare will not burn gases containing chlorine. The flare will burn gases containing more than 24 ppmv sulfur and is located more than ¼ mile from any recreational area or residence or other structure not occupied or used solely by the owner.
- (1)(D) The heat release of the flare will comply with this paragraph.
- (2)(A) The company represents that the flare will burn a combustible mixture of gases containing only carbon, hydrogen, nitrogen, oxygen, sulfur, chlorine, or compounds derived from these elements.
- (2)(B) The company has registered the flare by submitting PI-7-CERT.
- (2)(C) The company represents that under no circumstances will liquids be burned in the flare.

### §106.512. Stationary Engines and Turbines.

- (1) The facility was registered by submitting Form PI-7CERT and Table 29 for each proposed reciprocating engine.
- (2) Engines are less than 500 hp.
- (3) NA, no turbines are being registered.
- (4) NA, no engines or turbines rated less than 500-hp or used for temporary replacement purposes are being registered.
- (5) All engines are fired with sweet natural gas.
- (6) Compliance with hourly and annual NO<sub>2</sub> NAAQS has been demonstrated using SCREEN3 dispersion modeling per 512(6)(A): The 1-hr GLCmax associated with the increase in emissions is 43.89 µg/m<sup>3</sup>. The 1-hr background concentration in La Salle County is 70 µg/m<sup>3</sup>. The total concentration is 113.89 µg/m<sup>3</sup> which is less than the 1-hr NO<sub>2</sub> standard of 188 µg/m<sup>3</sup>. The annual GLCmax is 3.51 µg/m<sup>3</sup> (Max. Hourly Conc. X 0.08). The annual background concentration is 20 µg/m<sup>3</sup>. The total concentration is 23.51 µg/m<sup>3</sup> which is less than the annual NO<sub>2</sub> standard of 100 µg/m<sup>3</sup>.
- (7)-Site is located in an area that cannot connect to the grid.

## ESTIMATED EMISSIONS

EPN	Emission Source	VOC		NOx		CO		PM <sub>2.5/10</sub>		H <sub>2</sub> S		SO <sub>2</sub>		HAPS**	
		lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
C1	COMPRESSOR ENGINE - CAT G3406 NA (215 hp)	0.53	2.10	0.95	4.15	1.90	8.30	0.05	0.20			<0.01	0.01	0.07	0.08
C2	COMPRESSOR ENGINE - CAT G3304 NA (95 hp)	0.08	0.34	0.15	0.64	0.15	0.64	0.02	0.10					0.03	0.13
C3	COMPRESSOR ENGINE - CAT G3306 NA (145 hp)	0.09	0.38	0.18	0.77	0.21	0.92	0.03	0.13					0.04	0.18
C4	COMPRESSOR ENGINE-CAT G379 NA (330 hp)	0.20	0.86	0.47	2.07	0.43	1.88	0.07	0.30			<0.01	0.01	0.11	0.50
ENG-5	COMPRESSOR ENGINE - BUCKS ENGINE - VORTEC 5.7L (95 hp)	0.17	0.72	0.57	2.49	0.97	4.26	0.02	0.10					0.03	0.13
H1	LINE HEATER	0.01	0.02	0.10	0.43	0.08	0.36	0.01	0.03			0.03	0.11	<0.01	0.01
H2	LINE HEATER	0.01	0.02	0.10	0.43	0.08	0.36	0.01	0.03			0.03	0.11	<0.01	0.01
H3	HEATER TREATER	0.01	0.02	0.10	0.43	0.08	0.36	0.01	0.03			0.03	0.11	<0.01	0.01
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01				

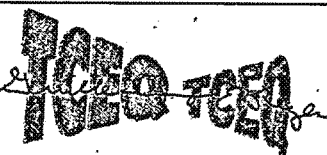


# TECHNICAL REVIEW: AIR PERMIT BY RULE

<b>Permit No.:</b>	108062	<b>Company Name:</b>	Aurora USA Development, LLC	<b>APD Reviewer:</b>	Mr. Guillermo Reyes, P.E.
<b>Project No.:</b>	211476	<b>Unit Name:</b>	JP Heard Bower CDP1	<b>PBR No(s).:</b>	106.352(1) 02/27/2011 106.492 09/04/2000 106.512 06/13/2001

ESTIMATED EMISSIONS																
EPN	Emission Source	VOC		NOx		CO		PM <sub>2.5/10</sub>		H <sub>2</sub> S		SO <sub>2</sub>		HAPS**		
		lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01					
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01					
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01					
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01					
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01					
VRU, FL-1	400-BBL CONDENSATE TANK	0.09	0.23	0.01	<0.01	0.02	<0.01			<0.01	<0.01					
VRU, FL-1	400-BBL WATER TANK	0.01	0.01							<0.01	<0.01			<0.00	<0.01	
VRU, FL-1	400-BBL WATER TANK	0.01	0.01							<0.01	<0.01			<0.00	<0.01	
VRU, FL-1	400-BBL WATER TANK	0.01	0.01							<0.01	<0.01			<0.01	<0.01	
VRU, FL-1	400-BBL WATER TANK	0.01	0.01							<0.01	<0.01			<0.01	<0.01	
L1	CONDENSATE LOADOUT	26.77	1.18							<0.01	<0.01			0.33	0.01	
CLD-2	CONDENSATE LOADOUT	26.77	1.18							<0.01	<0.01			0.33	0.01	
WLD-1	WATER LOADOUT	0.27	0.02							<0.01	<0.01					
WLD-2	WATER LOADOUT	0.27	0.02							<0.01	<0.01					
FUG	FUGITIVES	1.23	5.40							<0.01	<0.01			0.02	0.08	
TOTAL EMISSIONS (TPY):			15.06		11.44		0.21		0.92		<0.01		0.36		1.17	
MAXIMUM OPERATING SCHEDULE:		Hours/Day				Days/Week				Weeks/Year				Hours/Year		8760

\*\* Formaldehyde emissions are included in HAPS emissions

SITE REVIEW / DISTANCE LIMIT	Yes	No	Description/Outcome	Date	Reviewed by
Site Review Required?		X		July 30, 2014	
PBR Distance Limits Met?	X			July 30, 2014	Guillermo Reyes, P.E.

	TECHNICAL REVIEWER	PEER REVIEWER	FINAL REVIEWER
<b>SIGNATURE:</b>			 See Hard Copy.
<b>PRINTED NAME:</b>	Mr. Guillermo Reyes, P.E.	Ms. Sandya Rani Bhaskara, P.E.	Ms. Anne Inman, P.E., Manager
<b>DATE:</b>	July 31, 2014	July 31, 2014	August 4, 2014

BASIS OF PROJECT POINTS	POINTS
Base Points:	1.5
Project Complexity Description and Points:	1.0
Technical Reviewer Project Points Assessment:	2.5
Final Reviewer Project Points Confirmation:	

## 08/01/2014 -----NSR IMS - PROJECT RECORD -----

PROJECT#: 211476 PERMIT#: 108062 STATUS: PENDING DISP CODE: C  
RECEIVED: 05/28/2014 PROJTYPE: REVISION AUTHTYPE: PBR ISSUED DT: 8/4/14  
RENEWAL:  
PROJECT ADMIN NAME: UPDATED PRODUCTION EQUIPMENT AND DAILY PRODUCTION RATES  
PROJECT TECH NAME: JP HEARD BOWER CDP 1

## Assigned Team: RULE REG SECTION

## STAFF ASSIGNED TO PROJECT:

GLASPIE-FELIX, SHELIA - REVIEWR1\_2 - AP INITIAL REVIEW  
REYES, GUILLERMO - REVIEW ENG - RR TEAM

## CUSTOMER INFORMATION (OWNER/OPERATOR DATA)

ISSUED TO: AURORA USA DEVELOPMENT LLC  
COMPANY NAME: Aurora USA Development, LLC  
CUSTOMER REFERENCE NUMBER: CN604311951

## REGULATED ENTITY/SITE INFORMATION

REGULATED ENTITY NUMBER: RN106596786 ACCOUNT:  
PERMIT NAME: JP HEARD BOWER CDP 1

REGULATED ENTITY LOCATION: FR FM 1099 I 37 EXIT 88 INTX TAKE FM 1099 W 0.5 MI TURN L ON ALT HWY 281  
S GO 3.3 MI S TO SITE ON R

REGION 13 - SAN ANTONIO NEAR CITY: CAMPBELLTON COUNTY: ATASCOSA

## CONTACT DATA

CONTACT NAME: MR JOHN CAMPBELL CONTACT ROLE: RESPONSIBLE OFFICIAL  
JOB TITLE: VICE PRESIDENT OPERATIONS ORGANIZATION: AURORA USA DEVELOPMENT LLC  
MAILING ADDRESS: 1200 SMITH ST STE 2300, HOUSTON, TX, 77002-4507  
PHONE: (713) 402-1938 Ext: 0  
FAX: (713) 357-9674 Ext: 0  
EMAIL: JCAMPBELL@AURORAOAG.COM.AU

CONTACT NAME: MR MITCH KILLOUGH CONTACT ROLE: TECHNICAL CONTACT  
JOB TITLE: ENVIRONMENTAL CONSULTANT ORGANIZATION: NEW TECH CARR ENVIRONMENTAL GROUP  
MAILING ADDRESS: 911 REGIONAL PARK DR, HOUSTON, TX, 77060-3942  
PHONE: (281) 872-9300 Ext: 0  
FAX: (281) 872-4521 Ext: 0  
EMAIL: MKILLOUGH@NTCEG.COM

**PROJECT NOTES:**

05/29/2014 CR/SOS/DFC DONE 5/29/14 - NOT ON APWL  
 06/04/2014 REQUESTED SIGNED PI7/CDF - RECEIVED EMAILED DOCUMENTS - ORIGINALS TO BE  
 MAILED IN PER TC - RECEIVED ORIGINAL SIGNATURE PAGES FOR CDF/PI-7 - FORWARDED  
 TO RULES & REG 6/4/14

**PERMIT NOTES:****FEE:**

Reference	Fee Receipt Number	Amount	Fee Receipt Date	Fee Payment Type
207440		100.00		ePAY

**TRACKING ELEMENTS:**

TE Name	Start Date	Complete Date
APIRT RECEIVED PROJECT (DATE)	05/28/2014	
ADMIN DEFICIENCY CYCLE	05/29/2014	06/03/2014
CENTRAL REGISTRY UPDATED	05/29/2014	05/29/2014
APIRT TRANSFERRED PROJECT TO TECHNICAL STAFF (DATE)	06/03/2014	
PROJECT RECEIVED BY ENGINEER (DATE)	07/02/2014	
ENGINEER INITIAL REVIEW COMPLETED (DATE)	07/31/2014	
PEER / MANAGER REVIEW PERIOD	07/31/2014	07/31/2014
ENHANCED ADMINISTRATIVE OR APPLICATIONS REVIEW (EAR)		

**Permit Unit Type:****PROJECT RULES:**

Unit Desc	Rule Desc	Request Type	On Application	Approve
OIL AND GAS PRODUCTION FACILITIES	106.352 2011-FEB-27 -	ADD	Y	APPROVE
FLARES	106.492 -	ADD	Y	APPROVE
ENGINES AND TURBINES	106.512 -	ADD	Y	APPROVE

**PERMIT RULES:**

Unit Desc	Rule Desc	Start Date	End Date
FLARES	106.492	05/14/2013	
OIL AND GAS PRODUCTION FACILITIES	106.352 2011-FEB-27	05/14/2013	
ENGINES AND TURBINES	106.512	05/14/2013	

**PROJECT ATTRIBUTES:**

Attributes	Value
CERT_PI_7	
PROJECT POINT	

06/03/2014 -----NSR IMS - PROJECT RECORD -----

PROJECT#: 211476      PERMIT#: 108062      STATUS: PENDING      DISP CODE: \_\_\_\_\_  
RECEIVED: 05/28/2014      PROJTYPE: REVISION      AUTHTYPE: PBR      ISSUED DT: \_\_\_\_\_  
RENEWAL:  
PROJECT ADMIN NAME: UPDATED PRODUCTION EQUIPMENT AND DAILY PRODUCTION RATES  
PROJECT TECH NAME: JP HEARD BOWER CDP 1

Assigned Team: RULE REG SECTION

STAFF ASSIGNED TO PROJECT:

GLASPIE-FELIX, SHELIA      - REVIEWR1\_2 -      AP INITIAL REVIEW  
TEAM LEADER, RR      - REVIEW ENG -      RULE REG SECTION

CUSTOMER INFORMATION (OWNER/OPERATOR DATA)

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COMPANY NAME: Aurora USA Development, LLC  
CUSTOMER REFERENCE NUMBER: CN604311951

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PERMIT NAME: JP HEARD BOWER CDP 1

REGULATED ENTITY LOCATION: FR FM 1099 I 37 EXIT 88 INTX TAKE FM 1099 W 0.5 MI TURN L ON ALT HWY 281 S GO 3.3  
MI S TO SITE ON R

REGION 13 - SAN ANTONIO      NEAR CITY: CAMPBELLTON      COUNTY: ATASCOSA

CONTACT DATA

CONTACT NAME: MR JOHN CAMPBELL      CONTACT ROLE: RESPONSIBLE OFFICIAL  
JOB TITLE: VICE PRESIDENT OPERATIONS      ORGANIZATION: AURORA USA DEVELOPMENT LLC  
MAILING ADDRESS: 1200 SMITH ST STE 2300, HOUSTON, TX, 77002-4507  
PHONE: (713) 402-1938 Ext: 0  
FAX: (713) 357-9674 Ext: 0  
EMAIL: JCAMPBELL@AURORAOAG.COM.AU

CONTACT NAME: MR MITCH KILLOUGH      CONTACT ROLE: TECHNICAL CONTACT  
JOB TITLE: ENVIRONMENTAL CONSULTANT      ORGANIZATION: NEW TECH CARR ENVIRONMENTAL GROUP  
MAILING ADDRESS: 911 REGIONAL PARK DR, HOUSTON, TX, 77060-3942  
PHONE: (281) 872-9300 Ext: 0  
FAX: (281) 872-4521 Ext: 0  
EMAIL: MKILLOUGH@NTCEG.COM

PROJECT NOTES:

05/29/2014      CR/SOS/DFC DONE 5/29/14 - NOT ON APWL  
06/03/2014      REQUESTED SIGNED PI7/CDF - RECEIVED EMAILED DOCUMENTS - ORIGINALS TO BE MAILED IN PER TC

PERMIT NOTES:

FEE:

Reference	Fee Receipt Number	Amount	Fee Receipt Date	Fee Payment Type
207440		100.00		ePAY

TRACKING ELEMENTS:

TE Name	Start Date	Complete Date
APIRT RECEIVED PROJECT (DATE)	05/28/2014	
ADMIN DEFICIENCY CYCLE	05/29/2014	06/03/2014
CENTRAL REGISTRY UPDATED	05/29/2014	05/29/2014

APIRT TRANSFERRED PROJECT TO TECHNICAL STAFF (DATE) 06/03/2014  
DEFICIENCY CYCLE  
ENGINEER INITIAL REVIEW COMPLETED (DATE)  
ENHANCED ADMINISTRATIVE OR APPLICATIONS REVIEW (EAR)  
ENHANCED ADMINISTRATIVE OR APPLICATIONS REVIEW (EAR)  
PEER / MANAGER REVIEW PERIOD  
PROJECT RECEIVED BY ENGINEER (DATE)

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Permit Unit Type:

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PROJECT RULES:

Unit Desc	Rule Desc	Request Type	On Application	Approve
OIL AND GAS PRODUCTION FACILITIES	106.352 2011-FEB-27 -	ADD	Y	APPROVE
FLARES	106.492 -	ADD	Y	APPROVE
ENGINES AND TURBINES	106.512 -	ADD	Y	APPROVE

PERMIT RULES:

Unit Desc	Rule Desc	Start Date	End Date
FLARES	106.492	05/14/2013	
OIL AND GAS PRODUCTION FACILITIES	106.352 2011-FEB-27	05/14/2013	
ENGINES AND TURBINES	106.512	05/14/2013	

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PROJECT ATTRIBUTES:

Attributes	Value
PROJECT POINT	

## Shelia Glaspie-Felix

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**From:** Mitch Killough <MKillough@ntceg.com>  
**Sent:** Tuesday, June 03, 2014 12:58 PM  
**To:** Shelia Glaspie-Felix  
**Subject:** RE: Aurora USA Development, LLC - JP Heard Bower CDP 1 (PBR) and JP Heard Bower CDP 2 (Notification & SP)  
**Attachments:** Heard Bower CDP1\_PBR application\_signatures.pdf; Heard Bower CDP2\_SP application\_signatures.pdf

Shelia,

Here are the attachments. I will be in the office today if you would like to discuss the questions below.

Thanks.

Mitch D. Killough, CPSWPPP  
New Tech Global Environmental  
281.872.9300 (office)  
281.787.1499 (cell)

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**From:** Mitch Killough  
**Sent:** Tuesday, June 03, 2014 12:55 PM  
**To:** 'Shelia Glaspie-Felix'  
**Subject:** RE: Aurora USA Development, LLC - JP Heard Bower CDP 1 (PBR) and JP Heard Bower CDP 2 (Notification & SP)

Shelia,

As promised, here are the signed documents for the CDP 1 and 2.

For the signed originals, how should these be sent out and to whom? Should hardcopies go to both San Antonio and Austin offices?

Thanks.

Mitch D. Killough, CPSWPPP  
New Tech Global Environmental  
281.872.9300 (office)  
281.787.1499 (cell)

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**From:** Shelia Glaspie-Felix [<mailto:shelia.glaspie-felix@tceq.texas.gov>]  
**Sent:** Thursday, May 29, 2014 11:46 AM  
**To:** Mitch Killough  
**Subject:** Aurora USA Development, LLC - JP Heard Bower CDP 1 (PBR) and JP Heard Bower CDP 2 (Notification & SP)

Our office is in receipt of the above listed applications. Please address the following issues immediately in order to finish the administrative review of your application:

Original signatures needed for both applications and both Core Data Forms.

The signed documents can be sent via email or fax with the original to follow immediately in the mail.

*Shelia Glaspie-Felix*

*Air Permit Initial Review Team*

*Air Permits Division*

*Texas Commission on Environmental Quality*

*Phone (512) 239-1210*

*Fax (512) 239-4500*

*[shelia.glaspie-felix@tceq.texas.gov](mailto:shelia.glaspie-felix@tceq.texas.gov)*

**OWNER/OPERATOR:**  
**FACILITY:**  
**LOCATION:**

**AURORA USA DEVELOPMENT, LLC**  
**JP HEARD BOWER CDP 1**  
**ATASCOSA, TEXAS**

**SUMMARY OF AIR EMISSIONS**

EMISSION SOURCE	FIN	EPN	NOX		CO		PM		SO2		VOC		HAP		H2S	
			LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR
COMPRESSOR ENGINE - CAT G3406 NA	C1	C1	0.95	4.15	1.90	8.30	0.05	0.20	0.00	0.01	0.53	2.10	0.07	0.08	0.00	0.00
COMPRESSOR ENGINE - CAT G3304 NA	C2	C2	0.15	0.64	0.15	0.64	0.02	0.10	0.00	0.00	0.08	0.34	0.03	0.13	0.00	0.00
COMPRESSOR ENGINE - CAT G3306 NA	C3	C3	0.18	0.77	0.21	0.92	0.03	0.13	0.00	0.00	0.09	0.38	0.04	0.18	0.00	0.00
COMPRESSOR ENGINE - CAT G379 NA	C4	C4	0.47	2.07	0.43	1.88	0.07	0.30	0.00	0.01	0.20	0.86	0.11	0.50	0.00	0.00
COMPRESSOR ENGINE - BUCKS ENGINE - VORTEC 5.7L	ENG-5	ENG-5	0.57	2.49	0.97	4.26	0.02	0.10	0.00	0.00	0.17	0.72	0.03	0.13	0.00	0.00
LINE HEATER	H1	H1	0.10	0.43	0.08	0.36	0.01	0.03	0.03	0.11	0.01	0.02	0.00	0.01	0.00	0.00
LINE HEATER	H2	H2	0.10	0.43	0.08	0.36	0.01	0.03	0.03	0.11	0.01	0.02	0.00	0.01	0.00	0.00
HEATER TREATER	H3	H3	0.10	0.43	0.08	0.36	0.01	0.03	0.03	0.11	0.01	0.02	0.00	0.01	0.00	0.00
400-BBL CONDENSATE TANK	TK1	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00	0.00	0.00
400-BBL CONDENSATE TANK	TK2	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00	0.00	0.00
400-BBL CONDENSATE TANK	TK3	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00	0.00	0.00
400-BBL CONDENSATE TANK	TK4	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00	0.00	0.00
400-BBL CONDENSATE TANK	TK5	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00	0.00	0.00
400-BBL CONDENSATE TANK	TK6	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00	0.00	0.00
400-BBL CONDENSATE TANK	TK7	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00	0.00	0.00
400-BBL CONDENSATE TANK	TK8	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00	0.00	0.00
400-BBL CONDENSATE TANK	TK9	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00	0.00	0.00
400-BBL CONDENSATE TANK	TK10	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00	0.00	0.00
400-BBL CONDENSATE TANK	CTK-11	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00	0.00	0.00
400-BBL CONDENSATE TANK	CTK-12	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00	0.00	0.00
400-BBL WATER TANK	WTK-1	VRU, FL-1	0.00	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
400-BBL WATER TANK	WTK-2	VRU, FL-1	0.00	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
400-BBL WATER TANK	WTK-3	VRU, FL-1	0.00	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
400-BBL WATER TANK	WTK-4	VRU, FL-1	0.00	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
CONDENSATE LOADOUT	L1	L1	NA	NA	NA	NA	NA	NA	NA	NA	26.77	1.18	0.33	0.01	0.00	0.00
CONDENSATE LOADOUT	CLD-2	CLD-2	NA	NA	NA	NA	NA	NA	NA	NA	26.77	1.18	0.33	0.01	0.00	0.00
WATER LOADOUT	WLD-1	WLD-1	NA	NA	NA	NA	NA	NA	NA	NA	0.27	0.02	0.00	0.00	0.00	0.00
WATER LOADOUT	WLD-2	WLD-2	NA	NA	NA	NA	NA	NA	NA	NA	0.27	0.02	0.00	0.00	0.00	0.00
FUGITIVES	FUG	FUG	NA	NA	NA	NA	NA	NA	NA	NA	1.23	5.40	0.02	0.08	0.00	0.00
<b>TOTAL</b>			<b>2.71</b>	<b>11.44</b>	<b>4.12</b>	<b>17.14</b>	<b>0.21</b>	<b>0.92</b>	<b>0.09</b>	<b>0.36</b>	<b>57.46</b>	<b>15.11</b>	<b>0.98</b>	<b>1.17</b>	<b>0.02</b>	<b>0.00</b>

\* INCLUDES PM CONDENSABLE & PM FILTERABLE FOR ENG-1, ENG-2, ENG-3, ENG-4, ENG-5

\*\* VRU HAS A 98% CAPTURE EFFICIENCY AND IS OFFLINE 5% OF THE YEAR

\*\*\*AOS EMISSIONS ARE REPRESENTED FROM THE CONDENSATE AND WATER TANKS; WHEN THE VRU COMPRESSOR IS DOWN (438 HRS/YR), THE VAPORS ARE SENT TO THE FLARE



**Texas Commission on Environmental Quality**  
**Form PI-7-CERT**  
**Certification and Registration for Permits by Rule**

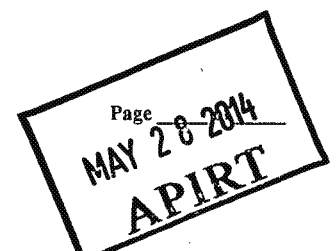
The TCEQ **requires** that a complete Core Data Form bearing an original signature be submitted on all incoming applications unless a Regulated Entity and Customer Reference Number have been issued by the TCEQ and no core data information has changed. For more information regarding the Core Data Form, call (512) 239-5175 or go to the TCEQ Web site at [www.tceq.texas.gov/permitting/central\\_registry/guidance.html](http://www.tceq.texas.gov/permitting/central_registry/guidance.html).

<b>I. Registrant Information</b>			
A. Company or Other Legal Customer Name: <b>Aurora USA Development, LLC</b>			
Company Official Contact Name: <b>John Campbell</b>			
Title: <b>Vice President - Operations</b>			
Mailing Address: <b>1200 Smith Street, Suite 2300</b>			
City: <b>Houston</b>		State: <b>Texas</b>	ZIP Code: <b>77002</b>
Phone: <b>(713) 402-1938</b>	Fax: <b>(713) 357-9674</b>	E-mail: <b>jcampbell@auroraoag.com.au</b>	
B. Technical Contact Name: <b>Mitch Killough</b>			
Title: <b>Environmental Consultant</b>			
Company: <b>New Tech/Carr Environmental Group</b>			
Mailing Address: <b>911 Regional Park Drive</b>			
City: <b>Houston</b>		State: <b>Texas</b>	ZIP Code: <b>77060</b>
Phone: <b>(281) 872-9300</b>	Fax: <b>(281) 872-4521</b>	E-mail: <b>mkillough@ntceg.com</b>	
C. Facility Location Information - Street Address: <b>Approximately 4.3 miles south of Campbellton, Texas</b>			
If "NO," street address, provide written driving directions to the site: (attach description if additional space is needed)			
From FM 1099/I-37 (exit 88) intersection, take FM 1099 west 0.5 mile. Turn left on Alt Hwy 281 south and travel 3.3 miles south to site on right.			
City: <b>Campbellton ✓</b>		County: <b>Atascosa ✓</b>	ZIP Code: <b>78008 ✓</b>
D. Is the Core Data Form (TCEQ Form 10400) attached?			<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
If "No," provide customer reference number and regulated entity number below:			
Customer Reference Number (CN): <b>604 311951 (SEF)</b>			
Regulated Entity Number (RN): <b>106 596 786 (SEF)</b>			
<b>II. Facility and Site Information</b>			
A. Name and Type of Facility: <b>JP Heard Bower CDP 1</b>			<input checked="" type="checkbox"/> Permanent <input type="checkbox"/> Portable
B. PBR claimed under <b>30 TAC 106</b> (List all):			
106. <b>352 Oil and Gas Handling and Production Facilities</b>		106. <b>492 Flares</b>	
106. <b>512 Stationary Engines and Turbines</b>		106.	



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<b>II. Facility and Site Information (continued))</b>		
Are you claiming a <b>historical standard exemption or PBR</b> ?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<i>"YES," enter effective date(s) and rule number(s) in the spaces provided below.</i>		
<b>Effective Date</b>	<b>Rule Number</b>	
C. Is there a previous Standard Exemption or PBR for the facility in this registration?		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
<i>If "YES," enter registration number(s), rule number(s) and effective dates in the spaces provided below.</i>		
<b>Registration Number</b>	<b>Effective Date</b>	<b>Rule Number</b>
108062	05/14/2013	106.352, 106.492, 106.512
D. Are there any other facilities at this site which are authorized by an Air Standard Exemption or PBR?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<i>If "YES," enter registration number(s), rule number(s) and effective dates in the spaces provided below.</i>		
<b>Registration Number</b>	<b>Effective Date</b>	<b>Rule Number</b>
E. Are there any other air preconstruction permits at this site?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<i>If "YES," enter permit number(s) in the spaces provided below.</i>		
Are there any other air preconstruction permits at this site that would be directly associated with this project?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<i>If "YES," enter permit number(s) in the spaces provided below.</i>		
F. Is this facility located at a site which is required to obtain a Federal Operating Permit (FOP) pursuant to 30 TAC Chapter 122?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> To be determined
If the site currently has an existing federal operating permit, enter the permit number.		
Check the requirements of 30 TAC Chapter 122 that will be triggered if this certification is accepted.		
<input type="checkbox"/> Initial Application for an FOP <input type="checkbox"/> Significant Revision for an SOP <input type="checkbox"/> Minor Revision for an SOP		
<input type="checkbox"/> Operational Flexibility/off Permit Notification for an SOP <input type="checkbox"/> Revision for GOP		
<input type="checkbox"/> To be Determined <input checked="" type="checkbox"/> None		





**Texas Commission on Environmental Quality**  
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<b>II. Facility and Site Information (continued)</b>	
Identify the type(s) issued and/or FOP application(s) submitted/pending for the site. <i>(Check all that apply)</i>	
<input type="checkbox"/> SOP	<input type="checkbox"/> GOP <input type="checkbox"/> GOP application/revision application: Submitted or under APD review.
<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> SOP application/revision application: submitted or under APD review.
G. TCEQ Account Identification Number (if known):	
<b>III. Fee Information</b>	
See Section VIII. for address to send fee or go to <a href="http://www6.tceq.texas.gov/epayto">www6.tceq.texas.gov/epayto</a> to pay online.	
A. Is this certification to solely establish a federally enforceable emission limit and not authorize any new facilities? <span style="float: right;"><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</span>	
If "YES," then no fee is required.	
If "NO," then go to Section III.B.	
B. If "YES," to any of the following three questions, a <b>\$100</b> fee is required. Otherwise, a <b>\$450</b> fee is required.	
Does this business have less than 100 employees?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Does this business have less than 6 million dollars in annual gross receipts?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Is this registration submitted by a governmental entity with a population of less than 10,000?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
C. Enter the check, money order, or transaction number.	TCEQ Voucher No. 207440
Enter the individual or company name printed on the check. <i>(below)</i>	
Fee amount (spell out): One Hundred Dollars	\$ 100.00
Was fee <b>Paid</b> online?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
<b>IV. Selected Facility Reviews Only—Technical Information</b>	
Note: If claiming one of the following PBRs, complete this section, then skip to Section VI., "Submitting your registration" below:	
Animal Feeding Operations 30 TAC 106.161, Livestock Auction Facilities 30 TAC 106.162, Saw Mills 30 TAC 106.223, Grain Handling, Storage and Drying 30 TAC 106.283, Auto Body Refinishing Facilities 30 TAC 106.436, and Air Curtain Incinerator 30 TAC 106.496	
A. Is the applicable PBR checklist attached which shows the facility meets all general and specific requirements of the PBR(s) being claimed?	<input type="checkbox"/> YES <input type="checkbox"/> NO
B. Distance from this facility's emission release point to the nearest property line:	feet
Distance from this facility's emission release point to the nearest off-property structure:	feet





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**V. TECHNICAL INFORMATION - The following information must be submitted with Form PI-7CERT. Place a check next to the appropriate box to verify you have included it in the submittal.**

<input checked="" type="checkbox"/> Process Flow Diagram and Process Description	<input checked="" type="checkbox"/> Emissions data and calculations
<input checked="" type="checkbox"/> Table 1(a) (Form 10153) Emission Point Summary	
<input type="checkbox"/> Confidential Information (All pages properly marked "CONFIDENTIAL")	
Has the company implemented the project or waiting on a response from TCEQ?	<input checked="" type="checkbox"/> Implemented <input type="checkbox"/> Waiting
Projected Start of Construction Date:	
Is this an annual certification under 30 TAC Chapter 106.261 and/or 106.262? <span style="float: right;"><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</span>	
<input checked="" type="checkbox"/> Information on meeting the specific PBR requirements ( <i>PBR checklists maybe used and are optional.</i> )	<input checked="" type="checkbox"/> Information on meeting the general PBR requirements 30 TAC 106.4. ( <i>PBR checklists maybe used and are optional.</i> )
<i>Note: Please be reminded that if the facilities listed in this registration are subject to the Mass Emissions Cap &amp; Trade program under 30 TAC Chapter 101, Subchapter H, Division 3, the owner/operator of these facilities must possess NO<sub>x</sub> allowances equivalent to the actual NO<sub>x</sub> emissions from these facilities.</i>	
Distance from this facility's emission release point to the nearest property line:	>1320 feet
Distance from this facility's emission release point to the nearest off-property structure:	>1320 feet
<i>Note: In limited cases, a map or drawing of the site and surrounding land use may be requested during the technical review or at the request of the TCEQ Regional Office or local air pollution control program during an investigation.</i>	
<b>VI. DELINQUENT FEES</b>	
This form <b>will not be processed</b> until all delinquent fees and/or penalties owed to the TCEQ or the Office of the Attorney General on behalf of the TCEQ is paid in accordance with the Delinquent Fee and Penalty Protocol. For more information regarding Delinquent Fees and Penalties, go to the TCEQ Web site at: <a href="http://www.tceq.texas.gov/agency/delin/index.html">www.tceq.texas.gov/agency/delin/index.html</a> .	





**Texas Commission on Environmental Quality**  
**Form PI-7-CERT**  
**Certification and Registration for Permits by Rule**

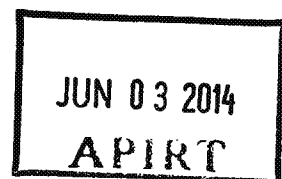
**VII. SIGNATURE FOR CERTIFICATION AND REGISTRATION**

The signature below indicates that the Responsible Official has knowledge of the facts herein set forth and that the same are true, accurate, and complete to the best of my knowledge and belief. By this signature, the maximum emission rates listed on this certification reflect the maximum anticipated emissions due to the operation of this facility and all representations in this certification of emissions are conditions upon which the facilities and sources will operate. It is understood that it is unlawful to vary from these representations unless the certification is first revised. The signature certifies that to the best of the Responsible Official's knowledge and belief, the project will satisfy the conditions and limitations of the indicated exemption or permit by rule and the facility will operate in compliance with all regulations of the Texas Commission on Environmental Quality and with Federal U.S. Environmental Protection Agency regulations governing air pollution. The signature below certifies that, based on information and belief formed after reasonable inquiry, the statements and information above and contained in the attached document(s) are true, accurate, and complete. **If you questions on how to fill out this form or about air quality permits. Please call (512) 239-1250.** *Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, call (512) 239-3282.*

SIGNATURE: \_\_\_\_\_

5/28/14  
DATE

(ORIGINAL SIGNATURE REQUIRED)





**Texas Commission on Environmental Quality  
Form PI-7-CERT  
Certification and Registration for Permits by Rule**

**VII. SIGNATURE FOR CERTIFICATION AND REGISTRATION**

The signature below indicates that the Responsible Official has knowledge of the facts herein set forth and that the same are true, accurate, and complete to the best of my knowledge and belief. By this signature, the maximum emission rates listed on this certification reflect the maximum anticipated emissions due to the operation of this facility and all representations in this certification of emissions are conditions upon which the facilities and sources will operate. It is understood that it is unlawful to vary from these representations unless the certification is first revised. The signature certifies that to the best of the Responsible Official's knowledge and belief, the project will satisfy the conditions and limitations of the indicated exemption or permit by rule and the facility will operate in compliance with all regulations of the Texas Commission on Environmental Quality and with Federal U.S. Environmental Protection Agency regulations governing air pollution. The signature below certifies that, based on information and belief formed after reasonable inquiry, the statements and information above and contained in the attached document(s) are true, accurate, and complete. **If you questions on how to fill out this form or about air quality permits. Please call (512) 239-1250.** *Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, call (512) 239-3282.*

SIGNATURE: \_\_\_\_\_

\_\_\_\_\_  
**DATE**

**(ORIGINAL SIGNATURE REQUIRED)**





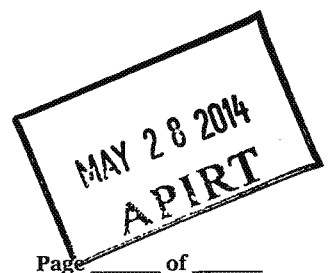
**Texas Commission on Environmental Quality**  
**Form PI-7-CERT**  
**Certification and Registration for Permits by Rule**

**VIII. SUBMITTING COPIES OF THE CERTIFICATION AND REGISTRATION**

**Copies must be sent as listed below:**

**Processing delays may occur if copies are not sent as noted.**

Who	Where	What
Air Permits Initial Review Team (APIRT)	Regular, Certified, Priority Mail MC161, P.O. Box 13087 Austin, Texas 78711-3087 Hand Delivery, Overnight Mail MC 161, 12100 Park 35 Circle, Building C, Third Floor Austin, Texas 78753 Fax: (512) 239-2123 <i>(do not follow fax with paper copies)</i>	Originals Form PI-7, Core Data Form and all attachments
Revenue Section, TCEQ	Regular, Certified, Priority Mail MC 214, P.O. Box 13088 Austin, Texas 78711-3088 Hand Delivery, Overnight Mail MC 214, 12100 Park 35 Circle, Building A, Third Floor Austin, Texas 78753	Original Money Order or Check Copy of Form PI-7 and Core Data Form
Appropriate TCEQ Regional Office	To find your Regional Office address, go to the TCEQ Web site at <a href="http://www.tceq.texas.gov.us/">www.tceq.texas.gov.us/</a> , or call (512) 239-1250.	Copy of Form PI-7, Core Data Form, and all attachments.
Appropriate Local Air Pollution Control Program(s)	To Find your local or Regional Air Pollution Control Programs go to the TCEQ, APD Website at <a href="http://www.tceq.texas.gov/nav/permits/air_permits.html">www.tceq.texas.gov/nav/permits/air_permits.html</a> or call (512) 239-1250	Copy of Form PI-7, Core Data Form, and all attachments.





# TCEQ Core Data Form

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

## SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided)			
<input type="checkbox"/> New Permit, Registration or Authorization (Core Data Form must be submitted with the program application)			
<input type="checkbox"/> Renewal (Core Data Form must be submitted with the renewal form)		<input checked="" type="checkbox"/> Other <b>Modification</b>	
2. Attachments		Describe Any Attachments: (ex. Title V Application, Waste Transporter Application, etc.)	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		TCEQ Form PI-7 CERT and supporting documents	
3. Customer Reference Number (if issued)		4. Regulated Entity Reference Number (if issued)	
CN 604311951		RN 106596786	

## SECTION II: Customer Information

5. Effective Date for Customer Information Updates:			
6. Customer Role (Proposed or Actual) – as it relates to the <u>Regulated Entity</u> listed on this form. Please check only <u>one</u> of the following:			
<input type="checkbox"/> Owner		<input type="checkbox"/> Operator	
<input type="checkbox"/> Occupational Licensee		<input type="checkbox"/> Responsible Party	
<input checked="" type="checkbox"/> Owner & Operator		<input type="checkbox"/> Volunteer Cleanup Applicant	
<input type="checkbox"/> Other:			
7. General Customer Information			
<input type="checkbox"/> New Customer		<input type="checkbox"/> Update to Customer Information	
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State)		<input type="checkbox"/> Change in Regulated Entity Ownership	
<input checked="" type="checkbox"/> No Change**			
**If "No Change" and Section I is complete, skip to Section III – Regulated Entity Information.			
8. Type of Customer:			
<input type="checkbox"/> Corporation		<input type="checkbox"/> Individual	
<input type="checkbox"/> City Government		<input type="checkbox"/> County Government	
<input type="checkbox"/> Other Government		<input type="checkbox"/> General Partnership	
<input type="checkbox"/> Federal Government		<input type="checkbox"/> Limited Partnership	
<input type="checkbox"/> State Government		<input type="checkbox"/> Other:	
9. Customer Legal Name (If an individual, print last name first: ex: Doe, John)			
If new Customer, enter previous Customer below		End Date:	
10. Mailing Address:			
City		State	
ZIP		ZIP + 4	
11. Country Mailing Information (if outside USA)		12. E-Mail Address (if applicable)	
13. Telephone Number		14. Extension or Code	
( )		( )	
15. Fax Number (if applicable)		16. Federal Tax ID (9 digits)	
( )		17. State Franchise Tax ID (11 digits)	
18. DUNS Number (if applicable)		19. SOS Filing Number (if applicable)	
20. Number of Employees		21. Independently Owned and Operated?	
<input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher		<input type="checkbox"/> Yes <input type="checkbox"/> No	

## SECTION III: Regulated Entity Information

22. General Regulated Entity Information (If 'New Regulated Entity' is selected below this form should be accompanied by a permit application)			
<input type="checkbox"/> New Regulated Entity <input checked="" type="checkbox"/> Update to Regulated Entity Name <input type="checkbox"/> Update to Regulated Entity Information <input type="checkbox"/> No Change** (See below)			
**If "NO CHANGE" is checked and Section I is complete, skip to Section IV, Preparer Information.			
23. Regulated Entity Name (name of the site where the regulated action is taking place)			
JP Heard Bower CDP 1			

24. Street Address of the Regulated Entity: <i>(No P.O. Boxes)</i>	Approximately 4.3 miles south of Campbellton, Texas.			
	City	State	ZIP	ZIP + 4
	Campbellton	Texas	78008	
25. Mailing Address:	1200 Smith Street, Suite 2300			
	City	State	ZIP	ZIP + 4
	Houston	Texas	77002	
26. E-Mail Address:	jcampbell@auroraoag.com.au			
27. Telephone Number	28. Extension or Code		29. Fax Number <i>(if applicable)</i>	
(713) 402-1938			(713) 357-9674	
30. Primary SIC Code (4 digits)	31. Secondary SIC Code (4 digits)	32. Primary NAICS Code (5 or 6 digits)	33. Secondary NAICS Code (5 or 6 digits)	
1311		211111		
34. What is the Primary Business of this entity? <i>(Please do not repeat the SIC or NAICS description.)</i>				
Oil and gas production facility				

Questions 34 – 37 address geographic location. Please refer to the instructions for applicability.

35. Description to Physical Location:	From FM 1099/I-37 (exit 88) intersection, take FM 1099 west 0.5 mile. Turn left on Alt Hwy 281 south and travel 3.3 miles south to site on right.			
36. Nearest City:	County:	State:	Nearest ZIP Code:	
Campbellton	Atascosa	Texas	78008	
37. Latitude (N) In Decimal:	28.6859	38. Longitude (W) In Decimal:	-98.2928	
Degrees	Minutes	Seconds	Degrees	Minutes

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form or the updates may not be made. If your Program is not listed, check other and write it in. See the Core Data Form Instructions for additional guidance.

<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Industrial Hazardous Waste	<input type="checkbox"/> Municipal Solid Waste
<input checked="" type="checkbox"/> New Source Review – Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS	<input type="checkbox"/> Sludge Tires
106.352(I)				
<input type="checkbox"/> Stormwater	<input type="checkbox"/> Title V – Air	<input type="checkbox"/> Used Oil	<input type="checkbox"/> Utilities	<input type="checkbox"/> Waste Water
<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:	<input type="checkbox"/> Other:	<input type="checkbox"/> Other:

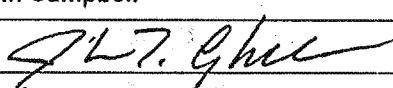
#### SECTION IV: Preparer Information

40. Name:	Mitch Killough	41. Title:	Environmental Consultant
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(281) 872-9300		(281) 872-4521	mkillough@ntceg.com

#### SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 9 and/or as required for the updates to the ID numbers identified in field 39.

*(See the Core Data Form instructions for more information on who should sign this form.)*

Company:	Aurora USA Development, LLC	Job Title:	Vice President - Operations
Name <i>(In Print)</i> :	John Campbell	Phone:	(713) 402-1938
Signature:		Date:	May 28, 2014

JUN 03 2014  
APIRT

24. Street Address of the Regulated Entity: <i>(No P.O. Boxes)</i>	Approximately 4.3 miles south of Campbellton, Texas.			
25. Mailing Address:	1200 Smith Street, Suite 2300			
	City	State	ZIP	ZIP + 4
	Campbellton	Texas	78008	
26. E-Mail Address:	jcampbell@auroraoag.com.au			
27. Telephone Number	28. Extension or Code	29. Fax Number <i>(if applicable)</i>		
(713) 402-1938		(713) 357-9674		
30. Primary SIC Code (4 digits)	31. Secondary SIC Code (4 digits)	32. Primary NAICS Code (5 or 6 digits)	33. Secondary NAICS Code (5 or 6 digits)	
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Campbellton	Atascosa	Texas	78008	
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<input checked="" type="checkbox"/> New Source Review – Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS	<input type="checkbox"/> Sludge Tires
106.352(I)				
<input type="checkbox"/> Stormwater	<input type="checkbox"/> Title V – Air	<input type="checkbox"/> Used Oil	<input type="checkbox"/> Utilities	<input type="checkbox"/> Waste Water
<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:	<input type="checkbox"/> Other:	<input type="checkbox"/> Other:

#### SECTION IV: Preparer Information

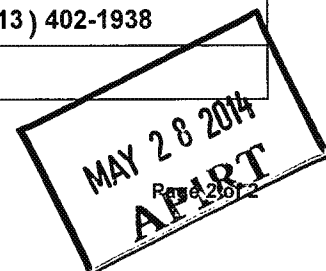
40. Name:	Mitch Killough	41. Title:	Environmental Consultant
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(281) 872-9300		(281) 872-4521	mkillough@ntceg.com

#### SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 9 and/or as required for the updates to the ID numbers identified in field 39.

*(See the Core Data Form instructions for more information on who should sign this form.)*

Company:	Aurora USA Development, LLC	Job Title:	Vice President - Operations
Name <i>(In Print)</i> :	John Campbell	Phone:	(713) 402-1938
Signature:		Date:	



**TCEQ ePay Voucher Receipt****Transaction Information**

**Voucher Number:** 207440  
**Trace Number:** 582EA000165743  
**Date:** 04/25/2014 08:03 AM  
**Payment Method:** CC - Authorization 0000204342  
**Amount:** \$100.00  
**Fee Type:** PERMIT BY RULE - SMALL BUSINESS, CITY OR ISD  
**ePay Actor:** Sarah Mccann-Aina

**Payment Contact Information**

**Name:** Sarah Mccann-Aina  
**Company:** New Tech Carr Environmental Group  
**Address:** 911 Regional Park Drive, Houston, TX 77060  
**Phone:** 281-872-9300

**Site Information**

**Site Name:** JP HEARD BOWER CDP 1  
**Site Location:** APPROXIMATELY 4.3 MILES SOUTH OF CAMPBELLTON TEXAS

**Customer Information**

**Customer Name:** AURORA USA DEVELOPMENT LLC



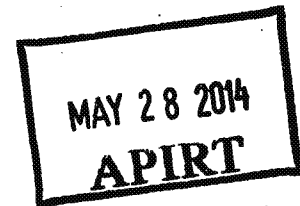


May 23, 2014

Air Permits Division  
Texas Commission on Environmental Quality  
MC-161  
P. O. Box 13087  
Austin, Texas 78711-3087

**AIR PERMITS DIVISION**  
**MAY 28 2014**  
**RECEIVED**

Re: Certification and Registration for Permits by Rule  
Aurora USA Development, LLC  
JP Heard Bower CDP 1  
Atascosa County, Texas  
TCEQ Customer Reference No. CN604311951  
TCEQ Regulated Entity No. RN106596786  
TCEQ Registration No. 108062



**Air Permits Division:**

Aurora USA Development, LLC (Aurora) is submitting this Certification and Registration for Permits by Rule for the JP Heard Bower CDP 1 in Atascosa County, Texas. The purpose of this submittal is to modify the previous permit authorization (TCEQ Registration No. 108062) for the site. The modifications to the site include updated production equipment and daily production rates.

- Aurora agrees to receive the response letter electronically.
- This project has been implemented.
- This project is up to date.

Aurora has submitted the required \$100.00 fee online to the TCEQ Revenue Department (see attached).

This application was prepared based on information and data provided by Aurora. If you have any questions or need further information to process this application, please call me at 281-872-9300. All written correspondence should be sent to:

Aurora USA Development, LLC  
1200 Smith Street, Suite 2300  
Houston, Texas 77002  
Attention: Mr. John Campbell

Sincerely,

Mitch Killough

Attachment

cc: Mr. John Campbell - Aurora  
TCEQ Region 13 - San Antonio, Texas

New Tech / Carr Environmental Group  
911 Regional Park Dr., Houston, Texas 77060  
T 281.872.9300 F 281.872.4521 [www.ntceg.com](http://www.ntceg.com)

# **CERTIFICATION AND REGISTRATION FOR PERMITS BY RULE**

**(30 TAC §106.352(I), §106.359, §106.492, and §106.512)**

---

**AURORA USA DEVELOPMENT, LLC**

**JP HEARD BOWER CDP 1**

**ATASCOSA COUNTY, TEXAS**

**TCEQ CUSTOMER REFERENCE NO. CN604311951**

**TCEQ REGULATED ENTITY NO. RN106596786**

**TCEQ REGISTRATION NO. 108062**

**MAY 2014**

*Prepared for:*



**AURORA USA DEVELOPMENT, LLC**

**1200 Smith Street, Suite 2300**

**Houston, Texas 77002**

**713-402-1920**

*Prepared by:*



**NEW TECH / CARR ENVIRONMENTAL GROUP**

**911 Regional Park Drive**

**Houston, Texas 77060**

**281-872-9300**

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TCEQ Table 29 – C2  
TCEQ Table 29 – C3  
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TCEQ Table 29 – ENG-5  
TCEQ §106.4 Checklist  
TCEQ §106.352(l) Checklist  
TCEQ §106.492 Checklist  
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Regulatory Applicability – Federal

**Section 4. Air Emission Sources and Rates**

Summary of Air Emissions  
Emission Rates and Calculation Methods

**Section 5. Impacts Analysis**

NO<sub>2</sub>

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JP Heard Bower No. 5H – Gas Evolved from Hydrocarbon Liquid Flashed – Sampled 01/24/2012  
JP Heard Bower No. 5H – First Stage Separator Hydrocarbon Liquid – Sampled 01/24/2012

**Section 7. Engine Data**

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Engine Catalyst Sheet

**Section 8. Figures**

Figure 1. Site Location Map  
Figure 2. Process Flow Diagram  
Figure 3. ¼-Mile Radius Map

## **SECTION 1. PROJECT DESCRIPTION**

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## Project Description

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### Introduction

New Tech / Carr Environmental Group, LLC (NTCEG) has prepared this Certification and Registration for Permits by Rule on behalf of Aurora USA Development, LLC (Aurora) for the JP Heard Bower CDP 1 in Atascosa County, Texas. The site is an oil and gas production facility consisting of engines, line heaters, heater treater, storage tanks, and loadouts. The site handles natural gas and petroleum liquids that contain more than 24 parts per million (ppm) hydrogen sulfide (H<sub>2</sub>S); therefore, the site is considered sour.

---

### Purpose

The purpose of this submittal is to modify the previous permit authorization (TCEQ Registration No. 108062) for the site. Modifications include updated production equipment and daily production rates.

---

### Location

The JP Heard Bower CDP 1 is located in Atascosa County, approximately 4.3 miles south of Campbellton, Texas (Figure 1).

Latitude: 28.6859° N  
Longitude: -98.2928° W  
UTM: Zone 14, 569089 E, 317339 N

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### Driving directions

From FM 1099/I 37 (exit 88) intersection, take FM 1099 west 0.5 mile. Turn left on Alt Highway 281 S and go 3.3 miles south to site on right.

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### Process description

The process description for the site is described below and shown in Figure 2.

- Production enters the site through line heaters (FIN: H1, H2).
  - From the line heater, the well stream is sent to a high-pressure (HP) separator.
  - From the HP separator, gas is sent to sales; liquids are sent to the low pressure (LP) separator.
  - From the LP separator, gas is sent to the compressor engines (FIN: C1, C2, C3, C4) and liquids are sent to the heater treater (FIN: H3).
  - The majority of the compressed gas is used to increase production by gas lifting. Any remaining gas is sold.
-

## Project Description, Continued

**Process  
Description,  
continued**

- From the heater treater, condensate and water are sent to their respective tanks (FIN: TK1, TK2, TK3, TK3, TK4, TK5, TK6, TK7, TK8, TK9, TK10, CTK-11, CTK-12, WTK-1, WTK-2, WTK-3, WTK-4).
- Condensate and water are loaded into a tank trucks (FIN: L1, CLD-2, WLD-1, WLD-2) and transported offsite.

Emission controls:

- Emissions from the condensate and water storage tanks are sent to the VRU (EPN: ENG-5; 98% capture efficiency).
- The VRU is equipped with the following design requirements and documentation will be made available to the TCEQ and/or EPA upon request:
  - Sensing equipment includes pressure sensors and temperature sensors.
  - An appropriately designed bypass system which automatically redirects streams as needed.
  - A compressor capable of varying operating speeds and recovering both wet and dry gas.

Alternate Operating Scenario

- The VRU is down 5% of the year, and the emissions from the condensate and water tank are sent to the flare (EPN: FL-1).
- The flare is equipped with an automatic igniter.

**Receptors**

There are no receptors within a ¼-mile radius of the site (Figure 3).

**Previous  
authorization**

The JP Heard Bower CDP 1 was previously registered under TCEQ Registration No. 108062.

**Daily  
production**

Emission rates are based on a daily throughput of 120 barrels (bbl) of oil, 0.06 million cubic feet (mmcf) of gas, and 250 bbl of water.

## Project Description, Continued

### Sampling

Emissions from the JP Heard Bower CDP 1 are based on gas and liquid samples collected from Aurora's JP Heard Bower 5H Production Facility. The JP Heard Bower 5H produces from the same geologic formation as the wells that produce into the JP Heard Bower CDP 1. The production equipment, operating conditions and produced gas and liquids are similar for all JP Heard Bower wells.

Sample Type	Sample Location	Sample Date
Gas	JP Heard A-5H – HP Separator	04/12/2013
Flash Gas	JP Heard Bower No. 5H – Gas Evolved from Hydrocarbon Liquid Flashed	01/24/2012
Liquid	JP Heard Bower No. 5H – First Stage Separator Hydrocarbon Liquid	01/24/2012

### H<sub>2</sub>S concentration

The site handles gas and liquids containing up to 200 ppm H<sub>2</sub>S; therefore, the site is considered sour.

## **SECTION 2. TCEQ DOCUMENTS**

---

TCEQ Core Data Form  
TCEQ Form PI-7 CERT  
TCEQ Table 1(a)  
TCEQ Table 29 – C1  
TCEQ Table 29 – C2  
TCEQ Table 29 – C3  
TCEQ Table 29 – C4  
TCEQ Table 29 – ENG-5  
TCEQ §106.4 Checklist  
TCEQ §106.352(I) Checklist  
TCEQ §106.492 Checklist  
TCEQ §106.512 Checklist



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date	05/2014	Permit No:		Regulated Entity Number	
Company	AURORA USA DEVELOPMENT, LLC - JP HEARD BOWER CDP 1				
Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.					
AIR CONTAMINANT DATA					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
EPN (A)	FIN (B)	NAME (C)		Pounds per Hour (A)	TPY (B)
C1	C1	COMPRESSOR ENGINE - CAT G3406 NA	NOX	0.95	4.15
C1	C1	COMPRESSOR ENGINE - CAT G3406 NA	CO	1.90	8.30
C1	C1	COMPRESSOR ENGINE - CAT G3406 NA	PM	0.05	0.20
C1	C1	COMPRESSOR ENGINE - CAT G3406 NA	SO2	0.00	0.01
C1	C1	COMPRESSOR ENGINE - CAT G3406 NA	VOC	0.53	2.10
C1	C1	COMPRESSOR ENGINE - CAT G3406 NA	HAP	0.07	0.08
C1	C1	COMPRESSOR ENGINE - CAT G3406 NA	H2S	0.00	0.00
C1	C1	COMPRESSOR ENGINE - CAT G3406 NA	BENZENE	0.00	0.02
C2	C2	COMPRESSOR ENGINE - CAT G3304 NA	NOX	0.15	0.64
C2	C2	COMPRESSOR ENGINE - CAT G3304 NA	CO	0.15	0.64
C2	C2	COMPRESSOR ENGINE - CAT G3304 NA	PM	0.02	0.10
C2	C2	COMPRESSOR ENGINE - CAT G3304 NA	SO2	0.00	0.00
C2	C2	COMPRESSOR ENGINE - CAT G3304 NA	VOC	0.08	0.34
C2	C2	COMPRESSOR ENGINE - CAT G3304 NA	HAP	0.03	0.13
C2	C2	COMPRESSOR ENGINE - CAT G3304 NA	H2S	0.00	0.00
C2	C2	COMPRESSOR ENGINE - CAT G3304 NA	BENZENE	0.00	0.01
C3	C3	COMPRESSOR ENGINE - CAT G3306 NA	NOX	0.18	0.77
C3	C3	COMPRESSOR ENGINE - CAT G3306 NA	CO	0.21	0.92
C3	C3	COMPRESSOR ENGINE - CAT G3306 NA	PM	0.03	0.13
C3	C3	COMPRESSOR ENGINE - CAT G3306 NA	SO2	0.00	0.00
C3	C3	COMPRESSOR ENGINE - CAT G3306 NA	VOC	0.09	0.38
C3	C3	COMPRESSOR ENGINE - CAT G3306 NA	HAP	0.04	0.18
C3	C3	COMPRESSOR ENGINE - CAT G3306 NA	H2S	0.00	0.00
C3	C3	COMPRESSOR ENGINE - CAT G3306 NA	BENZENE	0.00	0.01



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date	05/2014	Permit No:		Regulated Entity Number	
Company	AURORA USA DEVELOPMENT, LLC - JP HEARD BOWER CDP 1				
Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.					
AIR CONTAMINANT DATA					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
EPN (A)	FIN (B)	NAME (C)		Pounds per Hour (A)	TPY (B)
C4	C4	COMPRESSOR ENGINE - CAT G379 NA	NOX	0.47	2.07
C4	C4	COMPRESSOR ENGINE - CAT G379 NA	CO	0.43	1.88
C4	C4	COMPRESSOR ENGINE - CAT G379 NA	PM	0.07	0.30
C4	C4	COMPRESSOR ENGINE - CAT G379 NA	SO2	0.00	0.01
C4	C4	COMPRESSOR ENGINE - CAT G379 NA	VOC	0.20	0.86
C4	C4	COMPRESSOR ENGINE - CAT G379 NA	HAP	0.11	0.50
C4	C4	COMPRESSOR ENGINE - CAT G379 NA	H2S	0.00	0.00
C4	C4	COMPRESSOR ENGINE - CAT G379 NA	BENZENE	0.01	0.02
ENG-5	ENG-5	COMPRESSOR ENGINE - BUCKS ENGINE - VORTEC 5.7L	NOX	0.57	2.49
ENG-5	ENG-5	COMPRESSOR ENGINE - BUCKS ENGINE - VORTEC 5.7L	CO	0.97	4.26
ENG-5	ENG-5	COMPRESSOR ENGINE - BUCKS ENGINE - VORTEC 5.7L	PM	0.02	0.10
ENG-5	ENG-5	COMPRESSOR ENGINE - BUCKS ENGINE - VORTEC 5.7L	SO2	0.00	0.00
ENG-5	ENG-5	COMPRESSOR ENGINE - BUCKS ENGINE - VORTEC 5.7L	VOC	0.17	0.72
ENG-5	ENG-5	COMPRESSOR ENGINE - BUCKS ENGINE - VORTEC 5.7L	HAP	0.03	0.13
ENG-5	ENG-5	COMPRESSOR ENGINE - BUCKS ENGINE - VORTEC 5.7L	H2S	0.00	0.00
ENG-5	ENG-5	COMPRESSOR ENGINE - BUCKS ENGINE - VORTEC 5.7L	BENZENE	0.00	0.01
H1	H1	LINE HEATER	NOX	0.10	0.43
H1	H1	LINE HEATER	CO	0.08	0.36
H1	H1	LINE HEATER	PM	0.01	0.03
H1	H1	LINE HEATER	SO2	0.03	0.11
H1	H1	LINE HEATER	VOC	0.01	0.02
H1	H1	LINE HEATER	HAP	0.00	0.01
H1	H1	LINE HEATER	H2S	0.00	0.00
H1	H1	LINE HEATER	BENZENE	0.00	0.00



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date	05/2014	Permit No:		Regulated Entity Number	
Company	AURORA USA DEVELOPMENT, LLC - JP HEARD BOWER CDP 1				
Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.					
AIR CONTAMINANT DATA					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
EPN (A)	FIN (B)	NAME (C)		Pounds per Hour (A)	TPY (B)
H2	H2	LINE HEATER	NOX	0.10	0.43
H2	H2	LINE HEATER	CO	0.08	0.36
H2	H2	LINE HEATER	PM	0.01	0.03
H2	H2	LINE HEATER	SO2	0.03	0.11
H2	H2	LINE HEATER	VOC	0.01	0.02
H2	H2	LINE HEATER	HAP	0.00	0.01
H2	H2	LINE HEATER	H2S	0.00	0.00
H2	H2	LINE HEATER	BENZENE	0.00	0.00
H3	H3	HEATER TREATER	NOX	0.10	0.43
H3	H3	HEATER TREATER	CO	0.08	0.36
H3	H3	HEATER TREATER	PM	0.01	0.03
H3	H3	HEATER TREATER	SO2	0.03	0.11
H3	H3	HEATER TREATER	VOC	0.01	0.02
H3	H3	HEATER TREATER	HAP	0.00	0.01
H3	H3	HEATER TREATER	H2S	0.00	0.00
H3	H3	HEATER TREATER	BENZENE	0.00	0.00
VRU, FL-1	TK1	400-BBL CONDENSATE TANK	NOX	0.01	0.00
VRU, FL-1	TK1	400-BBL CONDENSATE TANK	CO	0.02	0.00
VRU, FL-1	TK1	400-BBL CONDENSATE TANK	SO2	0.00	0.00
VRU, FL-1	TK1	400-BBL CONDENSATE TANK	VOC	0.09	0.23
VRU, FL-1	TK1	400-BBL CONDENSATE TANK	HAP	0.00	0.00
VRU, FL-1	TK1	400-BBL CONDENSATE TANK	H2S	0.00	0.00
VRU, FL-1	TK1	400-BBL CONDENSATE TANK	BENZENE	0.00	0.00
VRU, FL-1	TK2	400-BBL CONDENSATE TANK	NOX	0.01	0.00



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date	05/2014	Permit No:		Regulated Entity Number	
Company	AURORA USA DEVELOPMENT, LLC - JP HEARD BOWER CDP 1				
Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.					
AIR CONTAMINANT DATA					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
EPN (A)	FIN (B)	NAME (C)		Pounds per Hour (A)	TPY (B)
VRU, FL-1	TK2	400-BBL CONDENSATE TANK	CO	0.02	0.00
VRU, FL-1	TK2	400-BBL CONDENSATE TANK	SO2	0.00	0.00
VRU, FL-1	TK2	400-BBL CONDENSATE TANK	VOC	0.09	0.23
VRU, FL-1	TK2	400-BBL CONDENSATE TANK	HAP	0.00	0.00
VRU, FL-1	TK2	400-BBL CONDENSATE TANK	H2S	0.00	0.00
VRU, FL-1	TK2	400-BBL CONDENSATE TANK	BENZENE	0.00	0.00
VRU, FL-1	TK3	400-BBL CONDENSATE TANK	NOX	0.01	0.00
VRU, FL-1	TK3	400-BBL CONDENSATE TANK	CO	0.02	0.00
VRU, FL-1	TK3	400-BBL CONDENSATE TANK	SO2	0.00	0.00
VRU, FL-1	TK3	400-BBL CONDENSATE TANK	VOC	0.09	0.23
VRU, FL-1	TK3	400-BBL CONDENSATE TANK	HAP	0.00	0.00
VRU, FL-1	TK3	400-BBL CONDENSATE TANK	H2S	0.00	0.00
VRU, FL-1	TK3	400-BBL CONDENSATE TANK	BENZENE	0.00	0.00
VRU, FL-1	TK4	400-BBL CONDENSATE TANK	NOX	0.01	0.00
VRU, FL-1	TK4	400-BBL CONDENSATE TANK	CO	0.02	0.00
VRU, FL-1	TK4	400-BBL CONDENSATE TANK	SO2	0.00	0.00
VRU, FL-1	TK4	400-BBL CONDENSATE TANK	VOC	0.09	0.23
VRU, FL-1	TK4	400-BBL CONDENSATE TANK	HAP	0.00	0.00
VRU, FL-1	TK4	400-BBL CONDENSATE TANK	H2S	0.00	0.00
VRU, FL-1	TK4	400-BBL CONDENSATE TANK	BENZENE	0.00	0.00
VRU, FL-1	TK5	400-BBL CONDENSATE TANK	NOX	0.01	0.00
VRU, FL-1	TK5	400-BBL CONDENSATE TANK	CO	0.02	0.00
VRU, FL-1	TK5	400-BBL CONDENSATE TANK	SO2	0.00	0.00
VRU, FL-1	TK5	400-BBL CONDENSATE TANK	VOC	0.09	0.23



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date	05/2014	Permit No:		Regulated Entity Number	
Company	AURORA USA DEVELOPMENT, LLC - JP HEARD BOWER CDP 1				
Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.					
AIR CONTAMINANT DATA					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
EPN (A)	FIN (B)	NAME (C)		Pounds per Hour (A)	TPY (B)
VRU, FL-1	TK5	400-BBL CONDENSATE TANK	HAP	0.00	0.00
VRU, FL-1	TK5	400-BBL CONDENSATE TANK	H2S	0.00	0.00
VRU, FL-1	TK5	400-BBL CONDENSATE TANK	BENZENE	0.00	0.00
VRU, FL-1	TK6	400-BBL CONDENSATE TANK	NOX	0.01	0.00
VRU, FL-1	TK6	400-BBL CONDENSATE TANK	CO	0.02	0.00
VRU, FL-1	TK6	400-BBL CONDENSATE TANK	SO2	0.00	0.00
VRU, FL-1	TK6	400-BBL CONDENSATE TANK	VOC	0.09	0.23
VRU, FL-1	TK6	400-BBL CONDENSATE TANK	HAP	0.00	0.00
VRU, FL-1	TK6	400-BBL CONDENSATE TANK	H2S	0.00	0.00
VRU, FL-1	TK6	400-BBL CONDENSATE TANK	BENZENE	0.00	0.00
VRU, FL-1	TK7	400-BBL CONDENSATE TANK	NOX	0.01	0.00
VRU, FL-1	TK7	400-BBL CONDENSATE TANK	CO	0.02	0.00
VRU, FL-1	TK7	400-BBL CONDENSATE TANK	SO2	0.00	0.00
VRU, FL-1	TK7	400-BBL CONDENSATE TANK	VOC	0.09	0.23
VRU, FL-1	TK7	400-BBL CONDENSATE TANK	HAP	0.00	0.00
VRU, FL-1	TK7	400-BBL CONDENSATE TANK	H2S	0.00	0.00
VRU, FL-1	TK7	400-BBL CONDENSATE TANK	BENZENE	0.00	0.00
VRU, FL-1	TK8	400-BBL CONDENSATE TANK	NOX	0.01	0.00
VRU, FL-1	TK8	400-BBL CONDENSATE TANK	CO	0.02	0.00
VRU, FL-1	TK8	400-BBL CONDENSATE TANK	SO2	0.00	0.00
VRU, FL-1	TK8	400-BBL CONDENSATE TANK	VOC	0.09	0.23
VRU, FL-1	TK8	400-BBL CONDENSATE TANK	HAP	0.00	0.00
VRU, FL-1	TK8	400-BBL CONDENSATE TANK	H2S	0.00	0.00
VRU, FL-1	TK8	400-BBL CONDENSATE TANK	BENZENE	0.00	0.00



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date	05/2014	Permit No:		Regulated Entity Number	
Company	AURORA USA DEVELOPMENT, LLC - JP HEARD BOWER CDP 1				
Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.					
AIR CONTAMINANT DATA					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
EPN (A)	FIN (B)	NAME (C)		Pounds per Hour (A)	TPY (B)
VRU, FL-1	TK9	400-BBL CONDENSATE TANK	NOX	0.01	0.00
VRU, FL-1	TK9	400-BBL CONDENSATE TANK	CO	0.02	0.00
VRU, FL-1	TK9	400-BBL CONDENSATE TANK	SO2	0.00	0.00
VRU, FL-1	TK9	400-BBL CONDENSATE TANK	VOC	0.09	0.23
VRU, FL-1	TK9	400-BBL CONDENSATE TANK	HAP	0.00	0.00
VRU, FL-1	TK9	400-BBL CONDENSATE TANK	H2S	0.00	0.00
VRU, FL-1	TK9	400-BBL CONDENSATE TANK	BENZENE	0.00	0.00
VRU, FL-1	TK10	400-BBL CONDENSATE TANK	NOX	0.01	0.00
VRU, FL-1	TK10	400-BBL CONDENSATE TANK	CO	0.02	0.00
VRU, FL-1	TK10	400-BBL CONDENSATE TANK	SO2	0.00	0.00
VRU, FL-1	TK10	400-BBL CONDENSATE TANK	VOC	0.09	0.23
VRU, FL-1	TK10	400-BBL CONDENSATE TANK	HAP	0.00	0.00
VRU, FL-1	TK10	400-BBL CONDENSATE TANK	H2S	0.00	0.00
VRU, FL-1	TK10	400-BBL CONDENSATE TANK	BENZENE	0.00	0.00
VRU, FL-1	CTK-11	400-BBL CONDENSATE TANK	NOX	0.01	0.00
VRU, FL-1	CTK-11	400-BBL CONDENSATE TANK	CO	0.02	0.00
VRU, FL-1	CTK-11	400-BBL CONDENSATE TANK	SO2	0.00	0.00
VRU, FL-1	CTK-11	400-BBL CONDENSATE TANK	VOC	0.09	0.23
VRU, FL-1	CTK-11	400-BBL CONDENSATE TANK	HAP	0.00	0.00
VRU, FL-1	CTK-11	400-BBL CONDENSATE TANK	H2S	0.00	0.00
VRU, FL-1	CTK-11	400-BBL CONDENSATE TANK	BENZENE	0.00	0.00
VRU, FL-1	CTK-12	400-BBL CONDENSATE TANK	NOX	0.01	0.00
VRU, FL-1	CTK-12	400-BBL CONDENSATE TANK	CO	0.02	0.00
VRU, FL-1	CTK-12	400-BBL CONDENSATE TANK	SO2	0.00	0.00



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date	05/2014	Permit No:		Regulated Entity Number	
Company	AURORA USA DEVELOPMENT, LLC - JP HEARD BOWER CDP 1				
Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.					
AIR CONTAMINANT DATA					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
EPN (A)	FIN (B)	NAME (C)		Pounds per Hour (A)	TPY (B)
VRU, FL-1	CTK-12	400-BBL CONDENSATE TANK	VOC	0.09	0.23
VRU, FL-1	CTK-12	400-BBL CONDENSATE TANK	HAP	0.00	0.00
VRU, FL-1	CTK-12	400-BBL CONDENSATE TANK	H2S	0.00	0.00
VRU, FL-1	CTK-12	400-BBL CONDENSATE TANK	BENZENE	0.00	0.00
VRU, FL-1	WTK-1	400-BBL WATER TANK	NOX	0.00	0.00
VRU, FL-1	WTK-1	400-BBL WATER TANK	CO	0.00	0.00
VRU, FL-1	WTK-1	400-BBL WATER TANK	SO2	0.00	0.00
VRU, FL-1	WTK-1	400-BBL WATER TANK	VOC	0.00	0.00
VRU, FL-1	WTK-1	400-BBL WATER TANK	HAP	0.00	0.01
VRU, FL-1	WTK-1	400-BBL WATER TANK	H2S	0.00	0.00
VRU, FL-1	WTK-1	400-BBL WATER TANK	BENZENE	0.00	0.00
VRU, FL-1	WTK-2	400-BBL WATER TANK	NOX	0.00	0.00
VRU, FL-1	WTK-2	400-BBL WATER TANK	CO	0.00	0.00
VRU, FL-1	WTK-2	400-BBL WATER TANK	SO2	0.00	0.00
VRU, FL-1	WTK-2	400-BBL WATER TANK	VOC	0.00	0.00
VRU, FL-1	WTK-2	400-BBL WATER TANK	HAP	0.00	0.01
VRU, FL-1	WTK-2	400-BBL WATER TANK	H2S	0.00	0.00
VRU, FL-1	WTK-2	400-BBL WATER TANK	BENZENE	0.00	0.00
VRU, FL-1	WTK-3	400-BBL WATER TANK	NOX	0.00	0.00
VRU, FL-1	WTK-3	400-BBL WATER TANK	CO	0.00	0.00
VRU, FL-1	WTK-3	400-BBL WATER TANK	SO2	0.00	0.00
VRU, FL-1	WTK-3	400-BBL WATER TANK	VOC	0.00	0.00
VRU, FL-1	WTK-3	400-BBL WATER TANK	HAP	0.00	0.01
VRU, FL-1	WTK-3	400-BBL WATER TANK	H2S	0.00	0.00



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date	05/2014	Permit No:		Regulated Entity Number	
Company	AURORA USA DEVELOPMENT, LLC - JP HEARD BOWER CDP 1				
Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.					
AIR CONTAMINANT DATA					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
EPN (A)	FIN (B)	NAME (C)		Pounds per Hour (A)	TPY (B)
VRU, FL-1	WTK-3	400-BBL WATER TANK	BENZENE	0.00	0.00
VRU, FL-1	WTK-4	400-BBL WATER TANK	NOX	0.00	0.00
VRU, FL-1	WTK-4	400-BBL WATER TANK	CO	0.00	0.00
VRU, FL-1	WTK-4	400-BBL WATER TANK	SO2	0.00	0.00
VRU, FL-1	WTK-4	400-BBL WATER TANK	VOC	0.00	0.00
VRU, FL-1	WTK-4	400-BBL WATER TANK	HAP	0.00	0.01
VRU, FL-1	WTK-4	400-BBL WATER TANK	H2S	0.00	0.00
VRU, FL-1	WTK-4	400-BBL WATER TANK	BENZENE	0.00	0.00
L1	L1	CONDENSATE LOADOUT	VOC	26.77	1.18
L1	L1	CONDENSATE LOADOUT	HAP	0.33	0.01
L1	L1	CONDENSATE LOADOUT	H2S	0.00	0.00
L1	L1	CONDENSATE LOADOUT	BENZENE	0.03	0.00
CLD-2	CLD-2	CONDENSATE LOADOUT	VOC	26.77	1.18
CLD-2	CLD-2	CONDENSATE LOADOUT	HAP	0.33	0.01
CLD-2	CLD-2	CONDENSATE LOADOUT	H2S	0.00	0.00
CLD-2	CLD-2	CONDENSATE LOADOUT	BENZENE	0.03	0.00
WLD-1	WLD-1	WATER LOADOUT	VOC	0.27	0.02
WLD-1	WLD-1	WATER LOADOUT	HAP	0.00	0.00
WLD-1	WLD-1	WATER LOADOUT	H2S	0.00	0.00
WLD-1	WLD-1	WATER LOADOUT	BENZENE	0.00	0.00
WLD-2	WLD-2	WATER LOADOUT	VOC	0.27	0.02
WLD-2	WLD-2	WATER LOADOUT	HAP	0.00	0.00
WLD-2	WLD-2	WATER LOADOUT	H2S	0.00	0.00
WLD-2	WLD-2	WATER LOADOUT	BENZENE	0.00	0.00



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date	05/2014	Permit No:		Regulated Entity Number	
Company	AURORA USA DEVELOPMENT, LLC - JP HEARD BOWER CDP 1				
Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.					
<b>AIR CONTAMINANT DATA</b>					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
EPN (A)	FIN (B)	NAME (C)		Pounds per Hour (A)	TPY (B)
FUG	FUG	FUGITIVES	VOC	1.23	5.40
FUG	FUG	FUGITIVES	HAP	0.02	0.08
FUG	FUG	FUGITIVES	H2S	0.00	0.00

EPN = Emission Point Number  
FIN = Facility Identification Number

# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date	05/2014	Permit No.	Regulated Entity No.										
Company	AURORA USA DEVELOPMENT, LLC - JP HEARD BOWER CDP 1												
Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.													
AIR CONTAMINANT DATA			EMISSION POINT DISCHARGE PARAMETERS										
1. Emission Point			4. UTM Coordinates of Emission Point*			Source							
EPN (A)	FIN (B)	NAME (C)	Zone	East (Meters)	North (Meters)	5. Building Height (Feet)	6. Height Above Ground (Feet)	7. Stack Exit Data			8. Fugitives		
								Diameter (Feet) (A)	Velocity (fps) (B)	Temperature (°F) (C)	Length (Feet) (A)	Width (Feet) (B)	Axis Degrees (C)
C1	C1	COMPRESSOR ENGINE - CAT G3406 NA	14	569089	317339		12.0	0.3					
C2	C2	COMPRESSOR ENGINE - CAT G3304 NA	14	569089	317339		8.0	0.3					
C3	C3	COMPRESSOR ENGINE - CAT G3306 NA	14	569089	317339		10.0	0.3					
C4	C4	COMPRESSOR ENGINE - CAT G379 NA	14	569089	317339		15.0	0.3					
ENG-5	ENG-5	COMPRESSOR ENGINE - BUCKS ENGINE - VORTEC 5.7	14	569089	317339		6.0	0.3					
H1	H1	LINE HEATER	14	569089	317339		12.0	0.7					
H2	H2	LINE HEATER	14	569089	317339		12.0	0.7					
H3	H3	HEATER TREATER	14	569089	317339		12.0	0.7					
TK1	TK1	400-BBL CONDENSATE TANK	14	569089	317339		22.0	0.3					
TK2	TK2	400-BBL CONDENSATE TANK	14	569089	317339		22.0	0.3					
TK3	TK3	400-BBL CONDENSATE TANK	14	569089	317339		22.0	0.3					
TK4	TK4	400-BBL CONDENSATE TANK	14	569089	317339		22.0	0.3					
TK5	TK5	400-BBL CONDENSATE TANK	14	569089	317339		22.0	0.3					
TK6	TK6	400-BBL CONDENSATE TANK	14	569089	317339		22.0	0.3					
TK7	TK7	400-BBL CONDENSATE TANK	14	569089	317339		22.0	0.3					
TK8	TK8	400-BBL CONDENSATE TANK	14	569089	317339		22.0	0.3					
TK9	TK9	400-BBL CONDENSATE TANK	14	569089	317339		22.0	0.3					
TK10	TK10	400-BBL CONDENSATE TANK	14	569089	317339		22.0	0.3					
CTK-11	VRU	400-BBL CONDENSATE TANK	14	569089	317339		22.0	0.3					
CTK-11	VRU	400-BBL CONDENSATE TANK	14	569089	317339		22.0	0.3					
WTK-1	WTK-1	400-BBL WATER TANK	14	569089	317339		22.0	0.3					
WTK-2	WTK-2	400-BBL WATER TANK	14	569089	317339		22.0	0.3					
WTK-3	WTK-3	400-BBL WATER TANK	14	569089	317339		22.0	0.3					
WTK-4	WTK-4	400-BBL WATER TANK	14	569089	317339		22.0	0.3					
L1	L1	CONDENSATE LOADOUT	14	569089	317339		10.0	0.2					
CLD-2	CLD-2	CONDENSATE LOADOUT	14	569089	317339		10.0	0.2					
WLD-1	WLD-1	WATER LOADOUT	14	569089	317339		10.0	0.2					
WLD-2	WLD-2	WATER LOADOUT	14	569089	317339		10.0	0.2					

# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date	05/2014	Permit No:	Regulated Entity No.												
Company	AURORA USA DEVELOPMENT, LLC - JP HEARD BOWER CDP 1														
Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.															
AIR CONTAMINANT DATA			EMISSION POINT DISCHARGE PARAMETERS												
1. Emission Point			4. UTM Coordinates of Emission Point*			5. Building			6. Height Above		7. Stack Exit Data			8. Fugitives	
EPN (A)	FIN (B)	NAME (C)	Zone	East (Meters)	North (Meters)	Height (Feet)	Ground (Feet)	Diameter (Feet) (A)	Velocity (fps) (B)	Temperature (°F) (C)	Length (Feet) (A)	Width (Feet) (B)	Axis Degrees (C)		
FUG	FUG	FUGITIVES	14	569089	317339		3.0	NA							

EPN = Emission Point Number

FIN = Facility Identification Number

\*UTM Coordinates are representative of the site's centerpoint and not individual emission points.



Texas Commission on Environmental Quality  
Table 29 Reciprocating Engines

<b>I. Engine Data</b>											
Manufacturer: CATERPILLAR		Model No. G3406 NA		Serial No. 4FD03390		Manufacture Date: 07/2008					
Rebuilds Date: NA		No. of Cylinders: 6		Compression Ratio: 10.3:1		EPN: C1					
Application: <input checked="" type="checkbox"/> Gas Compression <input type="checkbox"/> Electric Generation <input type="checkbox"/> Refrigeration <input type="checkbox"/> Emergency/Stand by											
<input checked="" type="checkbox"/> 4 Stroke Cycle <input type="checkbox"/> 2 Stroke Cycle <input checked="" type="checkbox"/> Carbureted <input checked="" type="checkbox"/> Spark Ignited <input type="checkbox"/> Dual Fuel <input type="checkbox"/> Fuel Injected											
<input type="checkbox"/> Diesel <input checked="" type="checkbox"/> Naturally Aspirated <input type="checkbox"/> Blower /Pump Scavenged <input checked="" type="checkbox"/> Turbo Charged and I.C. <input type="checkbox"/> Turbo Charged											
<input type="checkbox"/> Intercooled <input type="checkbox"/> I.C. Water Temperature <input type="checkbox"/> Lean Burn <input checked="" type="checkbox"/> Rich Burn											
Ignition/Injection Timing: Fixed: Variable:											
Manufacture Horsepower Rating: 215						Proposed Horsepower Rating: ≤ 215					
<b>Discharge Parameters</b>											
Stack Height (Feet)		Stack Diameter (Feet)		Stack Temperature (°F)		Exit Velocity (FPS)					
12		0.3		1215		1043 (CFM)					
<b>II. Fuel Data</b>											
Type of Fuel: <input checked="" type="checkbox"/> Field Gas <input type="checkbox"/> Landfill Gas <input type="checkbox"/> LP Gas <input type="checkbox"/> Natural Gas <input type="checkbox"/> Digester Gas <input type="checkbox"/> Diesel											
Fuel Consumption (BTU/bhp-hr): 7915				Heat Value: (HHV)				(LHV)			
Sulfur Content (grains/100 scf - weight %):											
<b>III. Emission Factors (Before Control)</b>											
NO <sub>x</sub>		CO		SO <sub>2</sub>		VOC		Formaldehyde		PM10	
g/hp-hr	ppmv	g/hp-hr	ppmv	lb/mmbtu	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	lb/mmbtu	ppmv
12.9		13.7		0.000588		0.27		0.25		0.01941	
Source of Emission Factors: <input checked="" type="checkbox"/> Manufacturer Data <input checked="" type="checkbox"/> AP-42 <input type="checkbox"/> Other (specify):											
<b>IV. Emission Factors (Post Control)</b>											
NO <sub>x</sub>		CO		SO <sub>2</sub>		VOC		Formaldehyde		PM10	
g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv
0.65		0.69				0.14		0.13			
Method of Emission Control: <input checked="" type="checkbox"/> NSCR Catalyst <input type="checkbox"/> Lean Operation <input type="checkbox"/> Parameter Adjustment											
<input type="checkbox"/> Stratified Charge <input type="checkbox"/> JLCC Catalyst <input checked="" type="checkbox"/> Other (Specify): Air/Fuel ratio controller											
Note: Must submit a copy of any manufacturer control information that demonstrates control efficiency.											
Is Formaldehyde included in the VOCs?										<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>V. Federal and State Standards (Check all that apply)</b>											
<input checked="" type="checkbox"/> NSPS JJJJ <input checked="" type="checkbox"/> MACT ZZZZ <input type="checkbox"/> NSPS IIII <input type="checkbox"/> Title 30 Chapter 117 - List County: _____											
<b>VI. Additional Information</b>											
1. Submit a copy of the engine manufacturer's site rating or general rating specification data.											
2. Submit a typical fuel gas analysis, including sulfur content and heating value. For gaseous fuels, provide mole percent of constituents.											
3. Submit description of air/fuel ratio control system (manufacturer information is acceptable).											



Texas Commission on Environmental Quality  
Table 29 Reciprocating Engines

<b>I. Engine Data</b>											
Manufacturer: CATERPILLAR		Model No. G3304 NA		Serial No. N4F01915		Manufacture Date: 12/2005					
Rebuilds Date: NA		No. of Cylinders: 4		Compression Ratio: 10.5:1		EPN: C2					
Application: <input checked="" type="checkbox"/> Gas Compression <input type="checkbox"/> Electric Generation <input type="checkbox"/> Refrigeration <input type="checkbox"/> Emergency/Stand by											
<input checked="" type="checkbox"/> 4 Stroke Cycle <input type="checkbox"/> 2 Stroke Cycle <input checked="" type="checkbox"/> Carbureted <input checked="" type="checkbox"/> Spark Ignited <input type="checkbox"/> Dual Fuel <input type="checkbox"/> Fuel Injected											
<input type="checkbox"/> Diesel <input checked="" type="checkbox"/> Naturally Aspirated <input type="checkbox"/> Blower /Pump Scavenged <input type="checkbox"/> Turbo Charged and I.C. <input type="checkbox"/> Turbo Charged											
<input type="checkbox"/> Intercooled <input type="checkbox"/> I.C. Water Temperature <input type="checkbox"/> Lean Burn <input checked="" type="checkbox"/> Rich Burn											
Ignition/Injection Timing: Fixed: _____ Variable: _____											
Manufacture Horsepower Rating: 95						Proposed Horsepower Rating: ≤ 95					
<b>Discharge Parameters</b>											
Stack Height (Feet)		Stack Diameter (Feet)		Stack Temperature (°F)		Exit Velocity (FPS)					
8		0.25		1105		459 (CFM)					
<b>II. Fuel Data</b>											
Type of Fuel: <input checked="" type="checkbox"/> Field Gas <input type="checkbox"/> Landfill Gas <input type="checkbox"/> LP Gas <input type="checkbox"/> Natural Gas <input type="checkbox"/> Digester Gas <input type="checkbox"/> Diesel											
Fuel Consumption (BTU/bhp-hr): 9118				Heat Value: (HHV)				(LHV)			
Sulfur Content (grains/100 scf - weight %):											
<b>III. Emission Factors (Before Control)</b>											
NO <sub>x</sub>		CO		SO <sub>2</sub>		VOC		Formaldehyde		PM10	
g/hp-hr	ppmv	g/hp-hr	ppmv	lb/mmmbtu	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	lb/mmmbtu	ppmv
13.92		13.92		0.000588		0.52		0.27		0.01941	
Source of Emission Factors: <input checked="" type="checkbox"/> Manufacturer Data <input checked="" type="checkbox"/> AP-42 <input type="checkbox"/> Other (specify):											
<b>IV. Emission Factors (Post Control)</b>											
NO <sub>x</sub>		CO		SO <sub>2</sub>		VOC		Formaldehyde		PM10	
g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv
0.7		0.7				0.26		0.14			
Method of Emission Control: <input checked="" type="checkbox"/> NSCR Catalyst <input type="checkbox"/> Lean Operation <input type="checkbox"/> Parameter Adjustment											
<input type="checkbox"/> Stratified Charge <input type="checkbox"/> JLCC Catalyst <input checked="" type="checkbox"/> Other (Specify): Air/fuel ratio controller											
<i>Note: Must submit a copy of any manufacturer control information that demonstrates control efficiency.</i>											
Is Formaldehyde included in the VOCs?										<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>V. Federal and State Standards (Check all that apply)</b>											
<input type="checkbox"/> NSPS JJJJ <input checked="" type="checkbox"/> MACT ZZZZ <input type="checkbox"/> NSPS IIII <input type="checkbox"/> Title 30 Chapter 117 - List County: _____											
<b>VI. Additional Information</b>											
1. Submit a copy of the engine manufacturer's site rating or general rating specification data.											
2. Submit a typical fuel gas analysis, including sulfur content and heating value. For gaseous fuels, provide mole percent of constituents.											
3. Submit description of air/fuel ratio control system (manufacturer information is acceptable).											



Texas Commission on Environmental Quality  
Table 29 Reciprocating Engines

<b>I. Engine Data</b>											
Manufacturer: CATERPILLAR		Model No. G3306 NA		Serial No. 7YD05785		Manufacture Date: 12/1996					
Rebuilds Date: NA		No. of Cylinders: 6		Compression Ratio: 10.5:1		EPN: C3					
Application: <input checked="" type="checkbox"/> Gas Compression <input type="checkbox"/> Electric Generation <input type="checkbox"/> Refrigeration <input type="checkbox"/> Emergency/Stand by											
<input checked="" type="checkbox"/> 4 Stroke Cycle <input type="checkbox"/> 2 Stroke Cycle <input checked="" type="checkbox"/> Carbureted <input checked="" type="checkbox"/> Spark Ignited <input type="checkbox"/> Dual Fuel <input type="checkbox"/> Fuel Injected											
<input type="checkbox"/> Diesel <input checked="" type="checkbox"/> Naturally Aspirated <input type="checkbox"/> Blower /Pump Scavenged <input type="checkbox"/> Turbo Charged and I.C. <input type="checkbox"/> Turbo Charged											
<input type="checkbox"/> Intercooled <input type="checkbox"/> I.C. Water Temperature <input type="checkbox"/> Lean Burn <input checked="" type="checkbox"/> Rich Burn											
Ignition/Injection Timing: Fixed: Variable:											
Manufacture Horsepower Rating: 145						Proposed Horsepower Rating: ≤ 145					
<b>Discharge Parameters</b>											
Stack Height (Feet)		Stack Diameter (Feet)		Stack Temperature (°F)		Exit Velocity (FPS)					
10		0.25		1063		634 (CFM)					
<b>II. Fuel Data</b>											
Type of Fuel: <input checked="" type="checkbox"/> Field Gas <input type="checkbox"/> Landfill Gas <input type="checkbox"/> LP Gas <input type="checkbox"/> Natural Gas <input type="checkbox"/> Digester Gas <input type="checkbox"/> Diesel											
Fuel Consumption (BTU/bhp-hr): 7775				Heat Value: (HHV)				(LHV)			
Sulfur Content (grains/100 scf - weight %):											
<b>III. Emission Factors (Before Control)</b>											
NO <sub>x</sub>		CO		SO <sub>2</sub>		VOC		Formaldehyde		PM10	
g/hp-hr	ppmv	g/hp-hr	ppmv	lb/mmbtu	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	lb/mmbtu	ppmv
10.9		13.10		0.000588		0.33		0.19		0.01941	
Source of Emission Factors: <input checked="" type="checkbox"/> Manufacturer Data <input checked="" type="checkbox"/> AP-42 <input type="checkbox"/> Other (specify):											
<b>IV. Emission Factors (Post Control)</b>											
NO <sub>x</sub>		CO		SO <sub>2</sub>		VOC		Formaldehyde		PM10	
g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv
0.55		0.66				0.17		0.10			
Method of Emission Control: <input checked="" type="checkbox"/> NSCR Catalyst <input type="checkbox"/> Lean Operation <input type="checkbox"/> Parameter Adjustment											
<input type="checkbox"/> Stratified Charge <input type="checkbox"/> JLCC Catalyst <input checked="" type="checkbox"/> Other (Specify): Air/fuel ratio controller											
Note: Must submit a copy of any manufacturer control information that demonstrates control efficiency.											
Is Formaldehyde included in the VOCs?										<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>V. Federal and State Standards (Check all that apply)</b>											
<input type="checkbox"/> NSPS JJJJ <input checked="" type="checkbox"/> MACT ZZZZ <input type="checkbox"/> NSPS IIII <input type="checkbox"/> Title 30 Chapter 117 - List County: _____											
<b>VI. Additional Information</b>											
1. Submit a copy of the engine manufacturer's site rating or general rating specification data.											
2. Submit a typical fuel gas analysis, including sulfur content and heating value. For gaseous fuels, provide mole percent of constituents.											
3. Submit description of air/fuel ratio control system (manufacturer information is acceptable).											



Texas Commission on Environmental Quality  
Table 29 Reciprocating Engines

<b>I. Engine Data</b>											
Manufacturer: CATERPILLAR		Model No. G379 NA		Serial No. 72B01402		Manufacture Date: 02/1986					
Rebuilds Date: NA		No. of Cylinders: 12		Compression Ratio: 9.5:1		EPN: C4					
Application: <input checked="" type="checkbox"/> Gas Compression <input type="checkbox"/> Electric Generation <input type="checkbox"/> Refrigeration <input type="checkbox"/> Emergency/Stand by											
<input checked="" type="checkbox"/> 4 Stroke Cycle <input type="checkbox"/> 2 Stroke Cycle <input checked="" type="checkbox"/> Carbureted <input checked="" type="checkbox"/> Spark Ignited <input type="checkbox"/> Dual Fuel <input type="checkbox"/> Fuel Injected											
<input type="checkbox"/> Diesel <input checked="" type="checkbox"/> Naturally Aspirated <input type="checkbox"/> Blower /Pump Scavenged <input checked="" type="checkbox"/> Turbo Charged and I.C. <input type="checkbox"/> Turbo Charged											
<input type="checkbox"/> Intercooled <input type="checkbox"/> I.C. Water Temperature <input type="checkbox"/> Lean Burn <input checked="" type="checkbox"/> Rich Burn											
Ignition/Injection Timing: Fixed: _____ Variable: _____											
Manufacture Horsepower Rating: 330						Proposed Horsepower Rating: ≤ 330					
<b>Discharge Parameters</b>											
Stack Height (Feet)		Stack Diameter (Feet)		Stack Temperature (°F)		Exit Velocity (FPS)					
15		0.3		1086		1398 (CFM)					
<b>II. Fuel Data</b>											
Type of Fuel: <input checked="" type="checkbox"/> Field Gas <input type="checkbox"/> Landfill Gas <input type="checkbox"/> LP Gas <input type="checkbox"/> Natural Gas <input type="checkbox"/> Digester Gas <input type="checkbox"/> Diesel											
Fuel Consumption (BTU/bhp-hr): 7814				Heat Value: (HHV)				(LHV)			
Sulfur Content (grains/100 scf - weight %):											
<b>III. Emission Factors (Before Control)</b>											
NO <sub>x</sub>		CO		SO <sub>2</sub>		VOC		Formaldehyde		PM10	
g/hp-hr	ppmv	g/hp-hr	ppmv	lb/mmbtu	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	lb/mmbtu	ppmv
8.70		7.90		0.000588		0.27		0.25		0.01941	
Source of Emission Factors: <input checked="" type="checkbox"/> Manufacturer Data <input checked="" type="checkbox"/> AP-42 <input type="checkbox"/> Other (specify):											
<b>IV. Emission Factors (Post Control)</b>											
NO <sub>x</sub>		CO		SO <sub>2</sub>		VOC		Formaldehyde		PM10	
g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv
0.65		0.59				0.14		0.13			
Method of Emission Control: <input checked="" type="checkbox"/> NSCR Catalyst <input type="checkbox"/> Lean Operation <input type="checkbox"/> Parameter Adjustment											
<input type="checkbox"/> Stratified Charge <input type="checkbox"/> JLCC Catalyst <input checked="" type="checkbox"/> Other (Specify): Air/fuel controller											
Note: Must submit a copy of any manufacturer control information that demonstrates control efficiency.											
Is Formaldehyde included in the VOCs?										<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>V. Federal and State Standards (Check all that apply)</b>											
<input type="checkbox"/> NSPS JJJ <input checked="" type="checkbox"/> MACT ZZZZ <input type="checkbox"/> NSPS IIII <input type="checkbox"/> Title 30 Chapter 117 - List County: _____											
<b>VI. Additional Information</b>											
1. Submit a copy of the engine manufacturer's site rating or general rating specification data.											
2. Submit a typical fuel gas analysis, including sulfur content and heating value. For gaseous fuels, provide mole percent of constituents.											
3. Submit description of air/fuel ratio control system (manufacturer information is acceptable).											



**Texas Commission on Environmental Quality**  
**Table 29 Reciprocating Engines**

<b>I. Engine Data</b>											
Manufacturer: Bucks Engine		Model No. 5.7L Vortec		Serial No.		Manufacture Date: 11/15/2012					
Rebuilds Date:		No. of Cylinders:		Compression Ratio:		EPN: ENG-5					
<b>Application:</b> <input checked="" type="checkbox"/> Gas Compression <input type="checkbox"/> Electric Generation <input type="checkbox"/> Refrigeration <input type="checkbox"/> Emergency/Stand by <input checked="" type="checkbox"/> 4 Stroke Cycle <input type="checkbox"/> 2 Stroke Cycle <input checked="" type="checkbox"/> Carbureted <input checked="" type="checkbox"/> Spark Ignited <input type="checkbox"/> Dual Fuel <input type="checkbox"/> Fuel Injected <input type="checkbox"/> Diesel <input type="checkbox"/> Naturally Aspirated <input type="checkbox"/> Blower /Pump Scavenged <input type="checkbox"/> Turbo Charged and I.C. <input checked="" type="checkbox"/> Turbo Charged <input type="checkbox"/> Intercooled <input type="checkbox"/> I.C. Water Temperature <input type="checkbox"/> Lean Burn <input checked="" type="checkbox"/> Rich Burn											
<b>Ignition/Injection Timing:</b>		Fixed:				Variable:					
Manufacture Horsepower Rating: 92				Proposed Horsepower Rating: ≤ 92							
<b>Discharge Parameters</b>											
Stack Height (Feet)		Stack Diameter (Feet)		Stack Temperature (°F)		Exit Velocity (FPS)					
6		0.33		1200		650 (CFM)					
<b>II. Fuel Data</b>											
Type of Fuel: <input type="checkbox"/> Field Gas <input type="checkbox"/> Landfill Gas <input type="checkbox"/> LP Gas <input checked="" type="checkbox"/> Natural Gas <input type="checkbox"/> Digester Gas <input type="checkbox"/> Diesel											
Fuel Consumption (BTU/bhp-hr): 9000				Heat Value: (HHV)				(LHV)			
Sulfur Content (grains/100 scf - weight %): < 10 GRAINS / 100 SCF											
<b>III. Emission Factors (Before Control)</b>											
NO <sub>x</sub>		CO		SO <sub>2</sub>		VOC		Formaldehyde		PM10	
g/hp-hr	ppmv	g/hp-hr	ppmv	lb/mmbtu	ppmv	g/hp-hr	ppmv	lb/mmbtu	ppmv	lb/mmbtu	ppmv
14.00		11.00		0.000588		0.4		0.00		0.01941	
Source of Emission Factors: <input checked="" type="checkbox"/> Manufacturer Data <input checked="" type="checkbox"/> AP-42 <input type="checkbox"/> Other (specify):											
<b>IV. Emission Factors (Post Control)</b>											
NO <sub>x</sub>		CO		SO <sub>2</sub>		VOC		Formaldehyde		PM10	
g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv	g/hp-hr	ppmv
1.00		2.00				0.7					
Method of Emission Control: <input checked="" type="checkbox"/> NSCR Catalyst <input type="checkbox"/> Lean Operation <input type="checkbox"/> Parameter Adjustment <input type="checkbox"/> Stratified Charge <input type="checkbox"/> JLCC Catalyst <input type="checkbox"/> Other (Specify):											
<i>Note: Must submit a copy of any manufacturer control information that demonstrates control efficiency.</i>											
Is Formaldehyde included in the VOCs?										<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<b>V. Federal and State Standards (Check all that apply)</b>											
<input checked="" type="checkbox"/> NSPS JJJJ <input checked="" type="checkbox"/> MACT ZZZZ <input type="checkbox"/> NSPS IIII <input type="checkbox"/> Title 30 Chapter 117 - List County:											
<b>VI. Additional Information</b>											
1. Submit a copy of the engine manufacturer's site rating or general rating specification data. 2. Submit a typical fuel gas analysis, including sulfur content and heating value. For gaseous fuels, provide mole percent of constituents. 3. Submit description of air/fuel ratio control system (manufacturer information is acceptable).											



**Texas Commission on Environmental Quality**  
**Permit by Rule Applicability Checklist**  
**Title 30 Texas Administrative Code § 106.4**

The following checklist was developed by the Texas Commission on Environmental Quality (TCEQ), Air Permits Division, to assist applicants in determining whether or not a facility meets all of the applicable requirements. Before claiming a specific Permit by Rule (PBR), a facility must first meet all of the requirements of Title 30 Texas Administrative Code § 106.4 (30 TAC § 106.4), "Requirements for Permitting by Rule." Only then can the applicant proceed with addressing requirements of the specific Permit by Rule being claimed.

The use of this checklist is not mandatory; however, it is the responsibility of each applicant to show how a facility being claimed under a PBR meets the general requirements of 30 TAC § 106.4 and also the specific requirements of the PBR being claimed. If all PBR requirements cannot be met, a facility will not be allowed to operate under the PBR and an application for a construction permit may be required under 30 TAC § 116.110(a).

Registration of a facility under a PBR can be performed by completing **Form PI-7** (Registration for Permits by Rule) or **Form PI-7-CERT** (Certification and Registration for Permits by Rule). The appropriate checklist should accompany the registration form. Check the most appropriate answer and include any additional information in the spaces provided. If additional space is needed, please include an extra page and reference the question number. The PBR forms, tables, checklists and guidance documents are available from the TCEQ, Air Permits Division Web site at: [www.tceq.state.tx.us/permitting/air/nav/air\\_pbr.html](http://www.tceq.state.tx.us/permitting/air/nav/air_pbr.html).

<b>1. 30 TAC § 106.4(a)(1) &amp; (4): Emission limits</b>																									
<p>List emissions in tpy for each facility (add additional pages or table if needed):</p> <table style="width: 100%; border-collapse: collapse;"><tr><td>SO<sub>2</sub> = _____</td><td>PM<sub>10</sub> = _____</td><td>VOC = _____</td><td>NO<sub>x</sub> = _____</td><td>CO = _____</td><td>Other _____ = _____</td></tr><tr><td>SO<sub>2</sub> = _____</td><td>PM<sub>10</sub> = _____</td><td>VOC = _____</td><td>NO<sub>x</sub> = _____</td><td>CO = _____</td><td>Other <b>TOTAL HAPS</b> = <b>1.17</b></td></tr><tr><td>SO<sub>2</sub> = _____</td><td>PM<sub>10</sub> = _____</td><td>VOC = _____</td><td>NO<sub>x</sub> = _____</td><td>CO = _____</td><td>Other _____ = _____</td></tr><tr><td colspan="6"><b>Total    0.36                    0.92                    15.11                    11.44                    17.14                    _____</b></td></tr></table>	SO <sub>2</sub> = _____	PM <sub>10</sub> = _____	VOC = _____	NO <sub>x</sub> = _____	CO = _____	Other _____ = _____	SO <sub>2</sub> = _____	PM <sub>10</sub> = _____	VOC = _____	NO <sub>x</sub> = _____	CO = _____	Other <b>TOTAL HAPS</b> = <b>1.17</b>	SO <sub>2</sub> = _____	PM <sub>10</sub> = _____	VOC = _____	NO <sub>x</sub> = _____	CO = _____	Other _____ = _____	<b>Total    0.36                    0.92                    15.11                    11.44                    17.14                    _____</b>						
SO <sub>2</sub> = _____	PM <sub>10</sub> = _____	VOC = _____	NO <sub>x</sub> = _____	CO = _____	Other _____ = _____																				
SO <sub>2</sub> = _____	PM <sub>10</sub> = _____	VOC = _____	NO <sub>x</sub> = _____	CO = _____	Other <b>TOTAL HAPS</b> = <b>1.17</b>																				
SO <sub>2</sub> = _____	PM <sub>10</sub> = _____	VOC = _____	NO <sub>x</sub> = _____	CO = _____	Other _____ = _____																				
<b>Total    0.36                    0.92                    15.11                    11.44                    17.14                    _____</b>																									
<ul style="list-style-type: none"><li>• Are the SO<sub>2</sub>, PM<sub>10</sub>, VOC, or other air contaminant emissions claimed for each facility in this PBR submittal less than 25 tpy? <span style="float: right;"><input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</span></li><li>• Are the NO<sub>x</sub> and CO emissions claimed for each facility in this PBR submittal less than 250 tpy? <span style="float: right;"><input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</span></li></ul> <p><i>If the answer to both is "Yes," continue to the question below. If the answer to either question is "No," a PBR cannot be claimed.</i></p>																									
<p>Has any facility at the property had public notice and opportunity for comment under 30 TAC Section 116 for a regular permit or permit renewal? (This does not include public notice for voluntary emission reduction permits, grandfathered existing facility permits, or federal operating permits.)</p> <p><i>If "Yes," skip to Section 2. If "No," continue to the questions below.</i></p>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO																								
<p>If the site has had no public notice, please answer the following:</p> <ul style="list-style-type: none"><li>• Are the SO<sub>2</sub>, PM<sub>10</sub>, VOC, or other emissions claimed for all facilities in this PBR submittal less than 25 tpy? <span style="float: right;"><input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</span></li><li>• Are the NO<sub>x</sub> and CO emissions claimed for all facilities in this PBR submittal less than 250 tpy? <span style="float: right;"><input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</span></li></ul> <p><i>If the answer to both questions is "Yes," continue to Section 2.</i> <i>If the answer to either question is "No," a PBR cannot be claimed. A permit will be required under Chapter 116.</i></p>																									
<b>2. 30 TAC § 106.4(a)(2): Nonattainment check</b>																									
<p>Are the facilities to be claimed under this PBR located in a designated ozone nonattainment county?</p> <p><i>If "Yes," please indicate which county by checking the appropriate box to the right.</i></p> <p>(Marginal) - Hardin, Jefferson, and Orange counties (BPA)</p> <p>(Moderate) - Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller counties (HGA)</p> <p>(Moderate) - Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant counties (DFW)</p> <p><i>If "Yes," to any of the above, continue to the next question. If "No," continue to Section 3.</i></p>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  <input type="checkbox"/> BPA <input type="checkbox"/> HGA <input type="checkbox"/> DFW																								

<p>Does this project trigger a nonattainment review? To determine the answer, review the information below:</p> <ul style="list-style-type: none"> <li>Is the project's potential to emit (PTE) for emissions of VOC or NO<sub>x</sub> increasing by 100 tpy or more? <i>PTE is the maximum capacity of a stationary source to emit any air pollutant under its worst-case physical and operational design unless limited by a permit, rule, or made federally enforceable by a certification.</i></li> <li>Is the site an existing major nonattainment site and are the emissions of VOC or NO<sub>x</sub> increasing by 40 tpy or more?</li> </ul> <p>If needed, attach contemporaneous netting calculations per nonattainment guidance.</p> <p>Additional information can be found at:  <a href="http://www.tceq.state.tx.us/permitting/air/forms/newsourcereview/tables/nsr_table8.html">www.tceq.state.tx.us/permitting/air/forms/newsourcereview/tables/nsr_table8.html</a> and  <a href="http://www.tceq.state.tx.us/permitting/air/nav/air_docs_newsourcereview.html">www.tceq.state.tx.us/permitting/air/nav/air_docs_newsourcereview.html</a></p> <p>If "Yes," to any of the above, the project is a major source or a major modification and a PBR may not be used. A Nonattainment Permit review must be completed to authorize this project. If "No," continue to Section 3.</p>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>3. 30 TAC § 106.4(a)(3): Prevention of Significant Deterioration (PSD) check</b>	
<p>Does this project trigger a review under PSD rules? To determine the answer, review the information below:</p> <ul style="list-style-type: none"> <li>Are emissions of any regulated criteria pollutant increasing by 100 tpy of any criteria pollutant at a named source?</li> <li>Are emissions of any criteria pollutant increasing by 250 tpy of any criteria pollutant at an unnamed source?</li> <li>Are emissions increasing above significance levels at an existing major site?</li> </ul> <p>PSD information can be found at:  <a href="http://www.tceq.state.tx.us/permitting/air/forms/newsourcereview/tables/nsr_table9.html">www.tceq.state.tx.us/permitting/air/forms/newsourcereview/tables/nsr_table9.html</a> and  <a href="http://www.tceq.state.tx.us/permitting/air/nav/air_docs_newsourcereview.html">www.tceq.state.tx.us/permitting/air/nav/air_docs_newsourcereview.html</a></p> <p>If "Yes," to any of the above, a PBR may not be used. A PSD Permit review must be completed to authorize the project. If "No," continue to Section 4.</p>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>4. 30 TAC § 106.4(a)(6): Federal Requirements</b>	
<ul style="list-style-type: none"> <li>Will all facilities under this PBR meet applicable requirements of Title 40 Code of Federal Regulations (40 CFR) Part 60, New Source Performance Standards (NSPS)? If "Yes," which Subparts are applicable?: <u>See Section 3</u></li> <li>Will all facilities under this PBR meet applicable requirements of 40 CFR Part 63, Hazardous Air Pollutants Maximum Achievable Control Technology (MACT) standards? If "Yes," which Subparts are applicable?: <u>See Section 3</u></li> <li>Will all facilities under this PBR meet applicable requirements of 40 CFR Part 61, National Emissions Standards for Hazardous Air Pollutants (NESHAPs)? If "Yes," which Subparts are applicable?: <u>Not Applicable</u></li> </ul> <p>If "Yes" to any of the above, please attach a discussion of how the facilities will meet any applicable standards.</p>	<input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A  <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A  <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A
<b>5. 30 TAC § 106.4(a)(7): PBR prohibition check</b>	
<p>Are there any air permits at the site containing conditions which prohibit or restrict the use of PBRs?</p> <p>If "Yes," PBRs may not be used or their use must meet the restrictions of the permit. A new permit or permit amendment may be required. List permit number(s): _____</p> <p>If "No," continue to Section 6.</p>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

<b>6. 30 TAC § 106.4(a)(8): NO<sub>x</sub> Cap and Trade</b>																
<ul style="list-style-type: none"> <li>● Is the facility located in Harris, Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, or Waller County? <i>If "Yes," answer the question below. If "No," continue to Section 7.</i></li> </ul>	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO														
<ul style="list-style-type: none"> <li>● Will the proposed facility or group of facilities obtain required allowances for NO<sub>x</sub> if they are subject to 30 TAC Chapter 101, Subchapter H, Division 3 (relating to the Mass Emissions Cap and Trade Program)?</li> </ul>	<input type="checkbox"/> YES	<input type="checkbox"/> NO														
<b>7. Highly Reactive Volatile Organic Compounds (HRVOC) check</b>																
<ul style="list-style-type: none"> <li>● Is the facility located in Harris County? <i>If "Yes," answer the next question. If "No," skip to the box below.</i></li> <li>● Will the project be constructed after June 1, 2006? <i>If "Yes," answer the next question. If "No," skip to the box below.</i></li> <li>● Will one or more of the following HRVOC be emitted as a part of this project?</li> </ul>	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO														
<p><i>If "Yes," complete the information below:</i></p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: left; padding-right: 20px;"><u>lb/hr</u></th> <th style="text-align: left;"><u>tpy</u></th> </tr> </thead> <tbody> <tr> <td>▶ 1,3-butadiene</td> <td>_____</td> </tr> <tr> <td>▶ all isomers of butene (e.g., isobutene [2-methylpropene or isobutylene])</td> <td>_____</td> </tr> <tr> <td>▶ alpha-butylene (ethylethylene)</td> <td>_____</td> </tr> <tr> <td>▶ beta-butylene (dimethylethylene, including both cis- and trans-isomers)</td> <td>_____</td> </tr> <tr> <td>▶ ethylene</td> <td>_____</td> </tr> <tr> <td>▶ propylene</td> <td>_____</td> </tr> </tbody> </table>	<u>lb/hr</u>	<u>tpy</u>	▶ 1,3-butadiene	_____	▶ all isomers of butene (e.g., isobutene [2-methylpropene or isobutylene])	_____	▶ alpha-butylene (ethylethylene)	_____	▶ beta-butylene (dimethylethylene, including both cis- and trans-isomers)	_____	▶ ethylene	_____	▶ propylene	_____	<input type="checkbox"/> YES	<input type="checkbox"/> NO
<u>lb/hr</u>	<u>tpy</u>															
▶ 1,3-butadiene	_____															
▶ all isomers of butene (e.g., isobutene [2-methylpropene or isobutylene])	_____															
▶ alpha-butylene (ethylethylene)	_____															
▶ beta-butylene (dimethylethylene, including both cis- and trans-isomers)	_____															
▶ ethylene	_____															
▶ propylene	_____															
<ul style="list-style-type: none"> <li>● Is the facility located in Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, or Waller County? <i>If "Yes," answer the next question. If "No," the checklist is complete.</i></li> <li>● Will the project be constructed after June 1, 2006? <i>If "Yes," answer the next question. If "No," the checklist is complete.</i></li> <li>● Will one or more of the following HRVOC be emitted as a part of this project?</li> </ul>	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO														
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<u>lb/hr</u>	<u>tpy</u>															
▶ ethylene	_____															
▶ propylene	_____															



**Oil and Gas Handling and Production Facilities  
Title 30 Texas Administrative Code § 106.352(I)**

Check the most appropriate answer and include any technical information in the spaces provided. If additional space is needed, please include an extra page that references this checklist. The forms, checklists, and guidance documents are available from the Texas Commission on Environmental Quality (TCEQ), Air Permits Division Web site at: [www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-o/oil\\_and\\_gas.html](http://www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-o/oil_and_gas.html). If you have any questions, or need additional assistance, please contact the Air Permits Division at (512) 239-1250.

The facility can register by submitting this application and any supporting documentation. Below is a checklist to ensure you have provided all appropriate documentation. For sites that require registration or if the company chooses to register the site with the TCEQ, a Core Data Form is required with this checklist.

<b>I. This checklist is for use by the operator to ensure a complete application.</b>	
1. Have you included each of the following items in the application?	
<input checked="" type="checkbox"/>	Process Description.
<input checked="" type="checkbox"/>	Plot plan or area map.
<input checked="" type="checkbox"/>	TCEQ Oil and Gas Emission Calculation Spreadsheet (or equivalent).
<input checked="" type="checkbox"/>	Detailed summary of maximum emissions estimates with supporting documentation, such as result reports from any emission estimation computer program.
<input checked="" type="checkbox"/>	Gas and Liquid analyses. If a site specific analysis is not submitted, please provide justification as to why a representative site was used.
<input checked="" type="checkbox"/>	Technical documents (manufacturer's specification sheet, operational design sheets)
<input checked="" type="checkbox"/>	State and Federal applicability.
<input checked="" type="checkbox"/>	Core Data Form (for new sites that have never been registered with the TCEQ).
<b>II. General Information and Questions/Descriptions</b>	
1.	<p>Is the project located in one of the Barnett Shale counties and did the start of construction or modification begin on or after April 1, 2011?</p> <p>Counties included in the Barnett Shale area: Archer, Bosque, Clay, Comanche, Cooke, Coryell, Dallas, Denton, Eastland, Ellis, Erath, Hill, Hood, Jack, Johnson, Montague, Palo Pinto, Parker, Shackelford, Stephens, Somervell, Tarrant, and Wise counties.</p> <p>For what is considered start of construction see:  <a href="http://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/factsheet-const.pdf">www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/factsheet-const.pdf</a></p> <p><i>If "Yes," do not complete this checklist. The project is subject to the requirements of §106.352(a)-(k). Additional information for Barnett Shale area projects can be found at: <a href="http://www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-o/oil_and_gas.html">www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-o/oil_and_gas.html</a>.</i></p>
	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2.	<p>Are the total site-wide emissions from all facilities claimed under §106.352 less than 25 tpy VOC, 250 tpy NOx, 250 tpy CO, and 25 tpy SO<sub>2</sub>?</p>
	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



**Oil and Gas Handling and Production Facilities  
Title 30 Texas Administrative Code § 106.352(l)**

<b>II. General Information and Questions/Descriptions (continued)</b>	
3. Does any facility at the site handle a stream with more than 24 ppm hydrogen sulfide (H <sub>2</sub> S)? <i>If "Yes," answer the following questions.</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
4. Are there flares, engines, or turbines at the site?  <i>If "Yes," attach supporting documentation to demonstrate compliance with the requirements.</i>  <i>Additional information and checklists can be found at:</i> §106.492 Flares: <a href="http://www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-v/flares.html">www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-v/flares.html</a> §106.512 Stationary Engines and turbines: <a href="http://www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-w/stationary_eng_turb.html">www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-w/stationary_eng_turb.html</a>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Does any facility at the site handle a stream with more than 24 ppm hydrogen sulfide (H <sub>2</sub> S)?  <i>If "Yes," answer the following questions. Registration is required prior to the start of operation.</i> <i>If "No," skip questions 6 through 8.</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6. Indicate the actual distance from the nearest emissions point to the nearest offsite receptor.  An offsite receptor includes any recreational area, residence, or other structure not occupied or used solely by the owner or operator of the facility. A facility handling sour gas must be located at least 1/4 mile from the nearest offsite receptor.	> <u>1320</u> feet
7. Indicate the total actual emission rate of sulfur compounds, excluding sulfur oxides, from all vents.	< <u>0.01</u> lb/hr
8. Does the height of all vents at the site emitting sulfur compounds meet the minimum required height based on the H <sub>2</sub> S emission rate in 106.352(l)(4)?  Note: Truck loading and fugitive sources are not considered vents.	> <u>20</u> feet

**Recordkeeping:** To demonstrate compliance with the requirements of the PBR, sufficient records must be maintained at all times. The records must be made available immediately upon request to the commission or any air pollution control program having jurisdiction. If you have any questions about the recordkeeping requirements, contact the Air Permits Division or the Air Program in the TCEQ Regional Office for the region in which the site is located.



## Exemption §106.492 Checklist (Previously Standard Exemption 80)

### Smokeless Gas Flares

**YOU MUST SUBMIT A PI-7 WITH REQUIRED ATTACHMENTS BEFORE CONSTRUCTION OR OPERATION IF THE GAS BURNED IN THE FLARE HAS A SULFUR OR CHLORINE CONCENTRATION GREATER THAN 24 PPMV.**

The following checklist is designed to help you confirm that you meet Exemption §106.492, previously standard exemption 80, requirements. **Any "no" answers indicate that the claim of exemption may not meet all requirements for the use of Exemption §106.492, previously standard exemption 80.** If you do not meet all the requirements, you may alter the project design/operation in such a way that all the requirements of the exemption are met, or obtain a construction permit.

<u>YES</u>	<u>NO</u>	<u>NA</u>	<u>DESCRIPTION</u>
✓	—	—	Have you included a description of how this exemption claim meets the general rule for the use of exemptions (§106.4 checklist is available)?
✓	—	—	Is the flare equipped with a tip designed to provide good mixing with air, flame stability and a tip velocity less than 60 ft/sec for gases having a lower heating value less than 1,000 BTU/ft <sup>3</sup> , or less than 400 ft/sec for gases with a LHV greater than 1,000 BTU/ft <sup>3</sup> ? Attach a description including BTU content and tip velocity (Table 8 is available).
✓	—	—	Is the flare equipped with a continuously burning pilot or other automatic ignition system that assures gas ignition whenever vents are directed to the flare? Attach a description of the system.
—	—	✓	If the flare emits more than 4 #/hr of reduced sulfur compounds, excluding sulfur oxides, is it equipped with an alarm system that immediately notifies appropriate personnel when the ignition system ceases functioning? Attach a description of the system.
✓	—	—	If the flare emits less than 4 #/hr of reduced sulfur compounds and is not equipped with an alarm system, does the stack height meet the requirements of condition (d) of §106.352, previously standard exemption STDX 66? Required height: <u>20</u> . Actual height <u>25</u> .
✓	—	—	If the flare burns gases containing more than 24 ppmv of sulfur, chlorine or compounds containing either element, is it located at least 1/4 mile from any recreational area, residence, or other structure not occupied or used solely by the owner or operator of the flare or owner of the property where the flare is located? Attach a scaled map.
—	—	✓	If the flare emits HCl, does the heat release (BTU/hr based on lower heating value) equal or exceed $2.73 \times 10^5 \times \text{HCl emission rate (lb/hr)}$ ? Attach calculations.
✓	—	—	If the flare emits SO <sub>2</sub> , does the heat release (BTU/hr based on lower heating value) equal or exceed $0.53 \times 10^5 \times \text{SO}_2 \text{ emission rate (lb/hr)}$ ? Attach calculations.
✓	—	—	Will you limit the flare to burning only combustible mixtures of gases containing only carbon, hydrogen, nitrogen, oxygen, sulfur, chlorine, or compounds derived from these elements?
✓	—	—	Will the gas mixture always have a net or lower heating value of at least 200 BTU/ft <sup>3</sup> prior to addition of air?
✓	—	—	Do you understand and will you ensure that liquids shall never be burned in the flare?



**Stationary Engines and Turbines  
Air Permits by Rule (PBR) Checklist  
Title 30 Texas Administrative Code § 106.512**

Check the most appropriate answer and include any additional information in the spaces provided. If additional space is needed, please include an extra page and reference the question number. The PBR forms, tables, checklists, and guidance documents are available from the TCEQ, Air Permits Division Web site at: [www.tceq.state.tx.us/permitting/air/nav/air\\_pbr.html](http://www.tceq.state.tx.us/permitting/air/nav/air_pbr.html).

This PBR (§ 106.512) requires registration with the commission's Office of Permitting, Remediation, and Registration in Austin before construction if the horsepower (hp) of the facility is greater than 240 hp. Registration of the facility can be performed by completing a Form PI-7, "Registration for Permits by Rule," or Form PI-7-CERT, "Certification and Registration for Permits by Rule." This checklist should accompany the registration form.

For additional assistance with your application, including resources to help calculate your emissions, please visit the Small Business and Local Government Assistance (SBLGA) webpage at the following link: [www.TexasEnviroHelp.org](http://www.TexasEnviroHelp.org)

**Definitions:**

The following words and terms, when used in this section, shall have the following meanings, unless the context clearly indicates otherwise.

- A. **Rich-burn Engine:** A rich-burn engine is a gas-fired, spark-ignited engine that is operated with an exhaust oxygen content less than four percent by volume.
- B. **Lean-burn Engine:** A lean-burn engine is a gas-fired, spark-ignited engine that is operated with an exhaust oxygen content of four percent by volume, or greater.
- C. **Rated Engine Horsepower:** Engine rated horsepower shall be based on the engine manufacturer's maximum continuous load rating at the lesser of the engine or driven equipment's maximum published continuous speed.
- D. **Turbine Horsepower:** Turbine rated horsepower shall be based on turbine base load, fuel power heating value, and International Standards Organization Standard Day Conditions of 59 degrees Fahrenheit, 1.0 atmosphere pressure, and 60 percent relative humidity.

Please Complete the Following:	C1, C2, C3, C4, ENG-5
<p>Will the engine or turbine be used as a replacement at an oil and gas site and does it meet all the requirements of the policy memo entitled, "<u>Replacement of All Engine and Turbine Components for Oil and Gas Production?</u>" <span style="float: right;"><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</span></p> <p><i>If "YES," registration is not required for like-kind replacements of engine or turbine components.</i></p> <p><i>If "NO," please continue.</i></p>	
<p>Is the engine or turbine rated less than 240 hp? <span style="float: right;"><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</span></p> <p><i>If "YES," then registration is not required, but the facility must comply with conditions (5) and (6) of this rule.</i></p> <p><i>If "NO," then registration is required and the facility must be registered by submitting a completed <u>Form PI-7</u> and <u>Table 29</u> or <u>Table 31</u>, as applicable, within 10 days after construction begins.</i></p>	
<p>Indicate the type of equipment (pick one):</p> <div style="display: flex; justify-content: space-between;"><span><input checked="" type="checkbox"/> Engine</span><span><input type="checkbox"/> Turbine</span></div> <p><i>If an engine, go to Question (2).</i></p> <p><i>If a turbine, go to Question (3)</i></p>	



**Stationary Engines and Turbines  
Air Permits by Rule (PBR) Checklist  
Title 30 Texas Administrative Code § 106.512**

**Please Complete the Following:**

Is the engine rated at 500 hp or greater?

☐ YES ☒ NO

*If "NO," the engine is between 240 hp and 500 hp. The engine must be registered by submitting a completed Form PI-7 and a Table 29 within 10 days after construction begins and must comply with conditions (5) and (6) of this rule.*

*If "YES," in addition to registration, the engine must operate in compliance with the following nitrogen (NO<sub>x</sub>) emission limit(s). Check the limit(s) applicable to this engine by answering the following:*

The engine is a gas-fired, rich-burn engine and will not exceed 2.0 grams per horsepower hour (g/hp-hr) under all operating conditions. ☐ YES ☐ NO

Indicate grams per horsepower hour NO<sub>x</sub> (g/hp-hr):

The engine is a spark-ignited, gas-fired, lean-burn engine or any compression-ignited, dual fuel-fired engine manufactured new after June 18, 1992, and will not exceed 2.0 g/hp-hr NO<sub>x</sub> at manufacturer's rated full load and speed at all times; except, the engine will not exceed 5.0 g/hp-hr NO<sub>x</sub> under reduced speed and 80% and 100% of full torque conditions. ☐ YES ☐ NO

Indicate grams per horsepower hour NO<sub>x</sub> (g/hp-hr):

The engine is any spark-ignited, lean-burn two-cycle or four-cycle engine or any compression-ignited, dual fuel-fired engine rated 825 hp or greater and manufactured between September 23, 1982 and June 18, 1992, and will not exceed 5.0 g/hp-hr NO<sub>x</sub> under all operating conditions. ☐ YES ☐ NO

Indicate grams per horsepower hour NO<sub>x</sub> (g/hp-hr):

The engine is any spark-ignited, gas-fired, lean-burn, four-cycle engine or compression-ignited, dual-fuel-fired engine that was manufactured before June 18, 1992, and is rated less than 825 hp, or was manufactured before September 23, 1982, and will not exceed 5.0 g/hp-hr NO<sub>x</sub> at manufacturer's rated full load and speed at all times; except, the engine will not exceed 8.0 g/hp-hr NO<sub>x</sub> under reduced speed and 80% and 100% of full torque conditions. ☐ YES ☐ NO

Indicate grams per horsepower hour NO<sub>x</sub> (g/hp-hr):

The engine is any spark-ignited, gas-fired, two-cycle, lean-burn engine that was manufactured before June 18, 1992, and is rated less than 825 hp, or was manufactured before September 23, 1982, and will not exceed 8.0 g/hp-hr NO<sub>x</sub> under all operating conditions. ☐ YES ☐ NO

Indicate grams per horsepower hour NO<sub>x</sub> (g/hp-hr):

The engine is any compression-ignited, liquid-fired engine and will not exceed 11.0 g/hp-hr NO<sub>x</sub> under all operating conditions. ☐ YES ☐ NO

Indicate grams per horsepower hour NO<sub>x</sub> (g/hp-hr):

Does the engine require an automatic air-fuel ratio controller to meet the NO<sub>x</sub> limit(s) above? ☐ YES ☐ NO

For spark-ignited gas-fired or compression-ignited dual fuel-fired engines, is the engine required to have an automatic air-fuel ratio controller under condition (2)(B) of the PBR? ☐ YES ☐ NO



**Stationary Engines and Turbines  
Air Permits by Rule (PBR) Checklist  
Title 30 Texas Administrative Code § 106.512**

Please Complete the Following:	
Are you aware of and accept responsibility for the record and testing requirements as specified in (2)(C) of the PBR?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is the turbine rated 500 hp or more? <span style="float: right;"><input type="checkbox"/> YES   <input type="checkbox"/> NO</span>	
<i>If "NO," the turbine is between 240 hp and 500 hp. The engine only needs to be registered by submitting a completed Form PI-7 and a Table 31 within 10 days after construction begins.</i>	
<i>If "YES," in addition to registration, the turbine must operate in compliance with the following emission limit(s).</i>	
Will the emissions of NO <sub>x</sub> exceed 3.0 g/hp-hr for gas-firing?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Will the turbine meet all applicable NO <sub>x</sub> and sulfur dioxide (or fuel sulfur) emission limitations, monitoring requirements, and reporting requirements of 40 CFR Part 60, NSPS Subpart GG?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is the engine or turbine rated less than 500 hp or used for temporary replacement purposes? <span style="float: right;"><input type="checkbox"/> YES   <input type="checkbox"/> NO</span>	
<i>If "NO," go to Question (5).</i>	
<i>If "YES," the equipment does not have to meet the emission limits of (2) and (3). However, the temporary replacement equipment can only remain in service for a maximum of 90 days.</i>	
What type of fuel will be used and will the fuel meet the requirements of the PBR?	
<input type="checkbox"/> Natural gas <input type="checkbox"/> Liquid Petroleum gas <input checked="" type="checkbox"/> Field gas <input type="checkbox"/> Liquid fuel	
Does the installation comply with the National Ambient Air Quality Standards (NAAQS)?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Indicate which method is used and attach the modeling report and/or calculations and diagrams to support the selected method.	
<input checked="" type="checkbox"/> Modeling <input type="checkbox"/> Stack height <input type="checkbox"/> Facility emissions and property line distance	
Have you included a modeling report and/or calculations and diagrams to support the selected NAAQS compliance determination method?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
For the Following Questions, Please Refer to the <u>Electric Generators under Permit by Rule Policy Memo</u> from October 2006.	
Is the engine or turbine used to generate electricity? <span style="float: right;"><input type="checkbox"/> YES   <input checked="" type="checkbox"/> NO</span>	
<i>If "NO," the following do not apply.</i>	



**Stationary Engines and Turbines  
Air Permits by Rule (PBR) Checklist  
Title 30 Texas Administrative Code § 106.512**

**Please Complete the Following:**

Will the engine or turbine be used to generate electricity to operate facilities authorized by a New Source Review Permit? ☐ YES ☒ NO

*If "YES," the engine or turbine does not qualify for this PBR and authorization must be obtained through a permit amendment.*

If the engine or turbine is used to generate electricity, will it be exclusively for on-site use at locations which cannot be connected to an electric grid? ☐ YES ☐ NO

*If "YES," describe why access to the electric grid is not available.*

*If "NO," the engine or turbine does not qualify for this PBR.*

Has an Electric Generating Unit Standard Permit been issued for one of the following activities for which the engine or turbine will only be used to generate electricity? ☐ YES ☐ NO

☐ Engines or turbines used to provide power for the operation of facilities registered under the Air Quality Standard Permit for Concrete Batch Plants.

☐ Engines or turbines satisfying the conditions for facilities permitted by rule under 30 TAC 106, Subchapter E (relating to Aggregate and Pavement).

☐ Engines or turbines used exclusively to provide power to electric pumps used for irrigating crops.

*If "NO," the engine or turbine does not qualify for this PBR.*

**Other Applicable Rules and Regulations:**

If the engine or turbine is located in the Houston/Galveston nonattainment area, is the site subject to the Mass Emission Cap and Trade Program? ☐ YES ☒ NO

Why or Why Not:

**Facility is not located in the Houston/Galveston nonattainment area.**

Is the facility subject to 30 TAC Chapter 115? ☐ YES ☒ NO

Why or Why Not:

**Facility is not involved in natural gas processing.**

Is the facility subject to 30 TAC Chapter §§ 117.201-223? ☐ YES ☒ NO

Why or Why Not:

**Facility is not a major source of nitrogen compounds.**



**Stationary Engines and Turbines  
Air Permits by Rule (PBR) Checklist  
Title 30 Texas Administrative Code § 106.512**

<b>Other Applicable Rules and Regulations:</b>	
Is the facility subject to <u>40 CFR Part 60, NSPS Subpart D</u> ?  Why or Why Not: <b>Facility is not a fossil-fuel-steam unit.</b>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Is the facility subject to <u>40 CFR Part 60, NSPS Subpart Da</u> ?  Why or Why Not: <b>Facility is not an electric utility steam generator.</b>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Is the facility subject to <u>40 CFR Part 60, NSPS Subpart Db</u> ?  Why or Why Not: <b>Facility is not a steam generating unit.</b>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Is the facility subject to <u>40 CFR Part 60, NSPS Subpart Dc</u> ?  Why or Why Not: <b>Facility is not a steam generating unit.</b>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Is the facility subject to <u>40 CFR Part 60, NSPS Subpart GG</u> ?  Why or Why Not: <b>Facility is not a stationary gas turbine.</b>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Is the facility subject to <u>40 CFR Part 63, MACT Subpart YYYY</u> ?  Why or Why Not: <b>Facility is not a combustion turbine.</b>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Is the facility subject to <u>40 CFR Part 63, MACT Subpart ZZZZ</u> ?  Why or Why Not: <b>Facility is an area source of HAP.</b>	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Is the facility subject to <u>40 CFR Part 63, MACT Subpart PPPP</u> ?  Why or Why Not: <b>Facility is not an engine test cell/stand.</b>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO



**Stationary Engines and Turbines  
Air Permits by Rule (PBR) Checklist  
Title 30 Texas Administrative Code § 106.512**

**Record Keeping:** In order to demonstrate compliance with the general and specific requirements of this PBR, sufficient records must be maintained to demonstrate that all requirements are met at all times. If the engine or turbine is rated greater than 500 horsepower, all records must be maintained as required by 30 TAC § 106.512(2)(C). The registrant should also become familiar with the additional record keeping requirements in 30 TAC § 106.8. The records must be made available immediately upon request to the commission or any air pollution control program having jurisdiction. If you have any questions about the type of records that should be maintained or testing requirements, contact the Air Program in the TCEQ Regional Office for the region in which the site is located.

**Recommended Calculation Method:** In order to demonstrate compliance with this PBR, emission factors for each air contaminant from the EPA Compilation of Air Pollutant Emission Factors (AP-42), Fifth Edition, Volume 1, Section 3.1: Stationary Gas Turbines for Electricity Generation at: [www.epa.gov/ttn/chief/ap42/index.html](http://www.epa.gov/ttn/chief/ap42/index.html) should be used, including, the specific air contaminant's emission limit listed on the table below.

**Save Form**

**Reset Form**

**Stationary Engines and Turbines  
Air Permits by Rule (PBR) Checklist  
Title 30 Texas Administrative Code § 106.512**

<b>TCEQ Exemption 30 TAC §106.512 General Guidelines</b>										
<b>NO<sub>x</sub> g/hp-hr Emission Limits</b>										
Date Original Manufacture		N/A	NA	Before 09/23/82		09/23/82 to 06/18/92			After 06/18/92	
Mfg. Rated Horsepower		X < 240	240 < X < 500	X > 500*		500 ≤ X ≤ 824*		X > 825	X > 500*	
Operating Speed		N/A	N/A	Full	Reduced	Full	Reduced	N/A	Full	Reduced
Operating Torque		N/A	N/A	N/A	80-100%	N/A	80-100%	N/A	N/A	80-100%
Ignition Type		<i>Engine Combustion Design</i>								
Spark	Rich Burn ††	N/A	N/A	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Spark	Lean Burn**	N/A	N/A	5.0	8.0	5.0	8.0	5.0	2.0	5.0
Spark	2-Cycle	N/A	N/A	8.0	8.0	8.0	8.0	5.0	2.0	5.0
Compression	Dual Fuel	N/A	N/A	5.0	8.0	5.0	8.0	5.0	2.0	5.0
Compression	Liquid Fuel	N/A	N/A	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Turbines†		NA	NA	3.0	3.0	3.0	3.0	3.0	3.0	3.0
PI-7 Registration		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Emission Testing		No	No	Biennial	Biennial	Biennial	Biennial	Biennial	Biennial	Biennial

**Notes:**

\* Lower emission rates apply to lean-burn engine operating: Full Speed & Any Torque or Any Speed & <80% or >100% Torque

† Turbine emissions are also regulated by EPA NSPS Standards for NO<sub>x</sub> and SO<sub>2</sub>

\*\* Lean Burn > 4% exhaust O<sub>2</sub>

†† Rich Burn = ≤ 4% exhaust O<sub>2</sub>

TCEQ 10146 (Revised 08/13) PBR Checklist 106.512

This form is used by sources subject to air quality permit standards and may be revised periodically. (APDG 5042 v7)

## **SECTION 3. REGULATORY APPLICABILITY**

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Regulatory Applicability – State  
Regulatory Applicability – Federal

## Regulatory Applicability – State

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### Introduction

This section presents a review of the state air quality regulations that apply to operations at the JP Heard Bower CDP 1.

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### 30 TAC Chapter 101

Operations at the site are subject to the following provisions under Chapter 101:

§101.10 – Emission Inventory Requirements – The site is not a major source, is not located in an ozone nonattainment area, and does not have the potential to emit 100 tons per year (tpy) or more of any contaminant. Therefore, Aurora is not required to submit annual air emission inventories for the site.

§101.24 – Inspection Fees – The site does not meet the requirements (i.e., listed SIC code) of the rule; therefore, Aurora is not required to pay inspection fees for the site.

§101.27 – Emissions Fees – The site is not a major source; therefore, Aurora is not required to pay emissions fees for the site.

§101.201 – Emission Event Reporting and Recordkeeping Requirements – Aurora will comply with the requirement to report emissions events exceeding the reportable quantities defined in this chapter. Records of such events will be retained for at least five years and made available to the TCEQ and/or EPA upon request.

§101.211 – Scheduled Maintenance, Startup, and Shutdown Reporting and Recordkeeping Requirements – Aurora will comply with the requirement to report any scheduled maintenance, startup, and shutdown activity that is expected to cause emissions in excess of the reportable quantities outlined in this chapter.

§101.221 – Operational Requirements – Aurora will ensure that equipment is maintained in good working order and operated properly during facility operations.

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### 30 TAC Chapter 106

Operations at the site comply with Permits by Rule 30 TAC §106.4, §106.352(l), §106.359, §106.492, and §106.512.

§106.4 – General Requirements of Permit By Rule – The site qualifies for permit by rule. Based on emission rates, total actual emissions from the site do not exceed 250 tpy of NO<sub>x</sub> or CO, or 25 tpy of VOC, SO<sub>2</sub>, or PM.

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## Regulatory Applicability – State, Continued

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30 TAC  
Chapter 106,  
continued

§106.352(l)- Oil and Gas Handling and Production Facilities – The site is an oil and gas production facility consisting of engines, line heater, heater treater, storage tanks, and loadouts. The site handles natural gas and petroleum liquids that contain more than 24 ppm H<sub>2</sub>S; therefore, it is considered sour. Total emissions of sulfur compounds, excluding sulfur oxides, from all vents do not exceed 4 lb/hr. This report demonstrates compliance with the provisions of this rule.

§106.359 – Planned Maintenance, Startup, and Shutdown (MSS) at Oil & Gas Handling and Production Facilities – The site qualifies for authorization of MSS emissions by meeting the requirements to maintain facilities in good operating condition. Aurora will keep records of planned MSS activities and implement a program to maintain and repair facilities in a manner that is consistent with good air pollution control practices.

§106.492 – Flares – The flare meets the requirements of the rule as follows:

- Is equipped with a flare tip designed to provide good mixing with air, flame stability, and a tip velocity less than 400 ft/sec.
- Is equipped with an automatic ignition system that assures gas ignition.
- Meets the heat release requirements of 30 TAC §106.492(1)(D).
- Is located greater than ¼ mile from the nearest off-property receptor.

§106.512 – Engines and Turbines – The compressors are powered by a Caterpillar G3406 NA (rich-burn; 215 hp) engine, Caterpillar G3304 NA (rich-burn, 95 hp), Caterpillar G3306 NA (rich-burn; 145 hp), Caterpillar G379 NA (rich-burn; 330 hp) and Bucks Engine – Vortec 5.7L (rich-burn; 92 hp). The engines meet the requirements of 30 TAC §106.512 as follows:

§106.512(2). The compressor engines have a maximum rating of <500 horsepower. Therefore, the engines are only subject to section (5) and (6).

§106.512(5). Gas fuel will be limited to sweet natural gas (i.e. fuel gas containing no more than 10 grains total sulfur/100 scf or field gas). If field gas contains more than 1.5 grains H<sub>2</sub>S or 30 grains total sulfur compounds per 100 scf, Aurora will maintain records which demonstrate the annual SO<sub>2</sub> emissions do not exceed 25 tpy.

§106.512(6). Compliance with National Ambient Air Quality Standard (NAAQS) for NO<sub>2</sub> has been demonstrated using dispersion modeling (see Section 5).

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## Regulatory Applicability – State, Continued

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### 30 TAC Chapter 111

The line heaters at the site are not a major source of primary particulate matter, and have little potential to generate visible stack emissions under normal operating conditions. However, they are subject to the provisions of this chapter, specifically 30 TAC §111.111 and §111.151.

§111.111 – Requirements for Specified Sources – Under the provisions of this rule, the exhaust stack of the line heater is subject to an opacity limit of 20% (30 TAC §111.111(a)(1)(B)). Since the units are fired solely by natural gas, a clean burning fuel, they will not be difficult to maintain compliance with this rule. The flare at the site is subject to 30 TAC §111.111(a)(4)(A) which requires that visible emissions not occur for more than 5 minutes in any 2-hour period, except as provided in 30 TAC §101.11.

§111.151 – Allowable Emission Limits – The line heater is subject to the process rate limits specified in this rule. Based on the stack characteristics and maximum hourly emission rates presented in Table 1(a), the units are in compliance with the specified emission limit.

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### 30 TAC Chapter 112

Operations at the site are subject to the provisions of 30 TAC §112.3 and §112.31.

§112.3 – Control of Sulfur Dioxide – Net Ground Level Concentrations – According to the rule, emissions from a site cannot exceed a net ground level concentration of 0.4 ppm<sub>v</sub> averaged over any 30-minute period. Dispersion modeling for SO<sub>2</sub> was not conducted; however, based on the amount of H<sub>2</sub>S in the production stream, the site will comply with this requirement.

§112.31 – Control of Hydrogen Sulfide – Allowable Emissions – Residential, Business or Commercial Property – According to the rule, emissions from the site cannot exceed a net ground level concentration of 0.08 ppm averaged over any 30-minute period if the downwind concentration of H<sub>2</sub>S affects a property used for any purpose other than residential, business, or commercial. Dispersion modeling for H<sub>2</sub>S was not conducted; however, based on the amount of H<sub>2</sub>S in the production stream, the site will comply with this requirement.

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### 30 TAC Chapter 113

See next section regarding federal regulations.

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### 30 TAC Chapter 114

The site does not use motor vehicles in normal operations; therefore, the chapter does not apply.

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## Regulatory Applicability – State, Continued

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**30 TAC  
Chapter 115**

**Subchapter B – General Volatile Organic Compound Sources**

The site is located in Atascosa County which is listed as a covered attainment county under this chapter. However, controls on condensate storage tanks are not required for a site in Atascosa County under Subchapter B.

**Subchapter C – Volatile Organic Compound Transfer Operations**

The site is located in Atascosa County which is listed as a covered attainment county under this chapter. However, controls on loading operations are not required for a site in Atascosa County under Subchapter C.

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**30 TAC  
Chapter 117**

The site is not located in an ozone nonattainment area or a multi-region combustion control area; therefore, the chapter does not apply.

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**30 TAC  
Chapter 118**

The provisions of this chapter require source curtailment during air pollution episodes. Due to the limited industrial sources and small number of motor vehicles active in the vicinity of the site, no air episodes have been experienced. The site is not located in one of the counties listed in 30 TAC §118.5, required to develop an emissions reduction plan. Aurora will comply with a curtailment order if issued.

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**30 TAC  
Chapter 122**

The site is not a major source as defined under the Federal Operating Permits Program (40 CFR Part 70). Therefore, Aurora is not required to submit a Title V permit application for the site.

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## Regulatory Applicability – Federal

### Introduction

This section presents a review of the federal air quality regulations that apply to operations at the JP Heard Bower CDP 1. The regulations include:

- New Source Performance Standards (NSPS – 40 CFR Part 60)
- National Emission Standards for Hazardous Air Pollutants (NESHAP – 40 CFR Part 63).

### NSPS – 40 CFR Part 60

The following subparts under 40 CFR Part 60 are potentially applicable to sources at the site:

Subpart	Applicable to Site	Reason for Final Determination
Kb	No	<u>Standards of Performance for Volatile Organic Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984</u> – The petroleum liquid storage tanks have a storage capacity less than 75 cubic meters (m <sup>3</sup> ) and are used to store petroleum prior to the custody transfer. Therefore, this subpart does not apply (40 CFR §60.110b(a)).
KKK	No	<u>Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants</u> – The site does not meet the definition of a natural gas processing plant as defined by 40 CFR §60.631; therefore, this subpart does not apply.
LLL	No	<u>Standards of Performance for Onshore Natural Gas Processing: SO<sub>2</sub> Emissions</u> – The site does not include an affected facility (i.e., sweetening unit); therefore, this subpart does not apply (40 CFR §60.640(a)).
JJJJ	Yes/No	<u>Standards of Performance for Stationary Spark Ignition Internal Combustion Engines</u> – The Caterpillar G3406 NA (rich-burn; 215 hp) and Bucks Engine - Vortec 5.7L (rich-burn; 92 hp) engines were manufactured after 07/01/2008; Therefore, the subpart applies (40 CFR §60.4230(a)(4)(iii)). The engine meets the emission standards outlined in this subpart (40 CFR §60.4232(e)). Aurora will meet the compliance requirements outlined in 40 CFR §60.4243(a)(2)(ii) by keeping a maintenance plan and records of conducted maintenance, and maintaining and operating the engines in a manner consistent with good air pollution control practice. Aurora will conduct an initial performance test within 1 year of initial startup to demonstrate compliance.  The Caterpillar G3304 NA (rich-burn; 95 hp), Caterpillar G3306 NA (rich-burn; 145 hp), and Caterpillar G379 NA (rich-burn; 330 hp) were manufactured before 07/01/2008; therefore, the subpart does not apply (40 CFR §60.4230(a)(4)(iii)).
OOOO	No	<u>Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution:</u> <ul style="list-style-type: none"> <li>• <u>Reciprocating Compressors</u> – The compressor at this site is located at the wellpad. Therefore, the subpart does not apply per 40 CFR §60.5365(c).</li> <li>• <u>Storage Tanks</u> – Emissions from the storage tanks are less than 6 tpy per tank. Therefore, this subpart does not apply (40 CFR §60.5395).</li> <li>• <u>Pneumatic Devices</u> – All continuous bleed natural gas-driven pneumatic controllers have a bleed rate less than 6 standard cubic feet per hour (scfh). Therefore, the subpart does not apply (40 CFR §60.5390).</li> </ul>

## Regulatory Applicability – Federal, continued

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NESHAP –  
40 CFR Part 63

The following subpart under 40 CFR Part 63 is potentially applicable to sources at the site:

Subpart	Applicable to Site	Reason for Final Determination
HH	No	<u>National Emission Standards for Hazardous Air Pollutants (HAPs) From Oil and Natural Gas Production Facilities</u> – Using the procedures specified in this subpart (See (1)-(3) under Major Source Definition (40 CFR §63.761)), the site does not constitute a major source of HAPs. In addition, the site does not include a glycol dehydrator. Therefore, this subpart does not apply.
ZZZZ	Yes	<u>National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines</u> – The subpart is applicable to the engines since the units are considered existing engines located at an area source of HAPs. The engines must meet the requirements of Subpart ZZZZ by meeting requirements of 40 CFR Part 60 Subpart JJJJ. No further requirements under this part (40 CFR §63.6590(c)(1)).

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## **SECTION 4. AIR EMISSION SOURCES AND RATES**

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Summary of Air Emissions  
Emission Rates and Calculation Methods

OWNER/OPERATOR:

AURORA USA DEVELOPMENT, LLC

FACILITY:

JP HEARD BOWER CDP 1

LOCATION:

ATASCOSA, TEXAS

**SUMMARY OF AIR EMISSIONS**

EMISSION SOURCE	FIN	EPN	NOX		CO		PM		SO2		VOC		HAP	
			LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR
COMPRESSOR ENGINE - CAT G3406 NA	C1	C1	0.95	4.15	1.90	8.30	0.05	0.20	0.00	0.01	0.53	2.10	0.07	0.08
COMPRESSOR ENGINE - CAT G3304 NA	C2	C2	0.15	0.64	0.15	0.64	0.02	0.10	0.00	0.00	0.08	0.34	0.03	0.13
COMPRESSOR ENGINE - CAT G3306 NA	C3	C3	0.18	0.77	0.21	0.92	0.03	0.13	0.00	0.00	0.09	0.38	0.04	0.18
COMPRESSOR ENGINE - CAT G379 NA	C4	C4	0.47	2.07	0.43	1.88	0.07	0.30	0.00	0.01	0.20	0.86	0.11	0.50
COMPRESSOR ENGINE - BUCKS ENGINE - VORTEC 5.7L	ENG-5	ENG-5	0.57	2.49	0.97	4.26	0.02	0.10	0.00	0.00	0.17	0.72	0.03	0.13
LINE HEATER	H1	H1	0.10	0.43	0.08	0.36	0.01	0.03	0.03	0.11	0.01	0.02	0.00	0.01
LINE HEATER	H2	H2	0.10	0.43	0.08	0.36	0.01	0.03	0.03	0.11	0.01	0.02	0.00	0.01
HEATER TREATER	H3	H3	0.10	0.43	0.08	0.36	0.01	0.03	0.03	0.11	0.01	0.02	0.00	0.01
400-BBL CONDENSATE TANK	TK1	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00
400-BBL CONDENSATE TANK	TK2	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00
400-BBL CONDENSATE TANK	TK3	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00
400-BBL CONDENSATE TANK	TK4	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00
400-BBL CONDENSATE TANK	TK5	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00
400-BBL CONDENSATE TANK	TK6	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00
400-BBL CONDENSATE TANK	TK7	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00
400-BBL CONDENSATE TANK	TK8	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00
400-BBL CONDENSATE TANK	TK9	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00
400-BBL CONDENSATE TANK	TK10	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00
400-BBL CONDENSATE TANK	CTK-11	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00
400-BBL CONDENSATE TANK	CTK-12	VRU, FL-1	0.01	0.00	0.02	0.00	NA	NA	0.00	0.00	0.09	0.23	0.00	0.00
400-BBL WATER TANK	WTK-1	VRU, FL-1	0.00	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.01
400-BBL WATER TANK	WTK-2	VRU, FL-1	0.00	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.01
400-BBL WATER TANK	WTK-3	VRU, FL-1	0.00	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.01
400-BBL WATER TANK	WTK-4	VRU, FL-1	0.00	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	0.00	0.00	0.01
CONDENSATE LOADOUT	L1	L1	NA	NA	NA	NA	NA	NA	NA	NA	26.77	1.18	0.33	0.01
CONDENSATE LOADOUT	CLD-2	CLD-2	NA	NA	NA	NA	NA	NA	NA	NA	26.77	1.18	0.33	0.01
WATER LOADOUT	WLD-1	WLD-1	NA	NA	NA	NA	NA	NA	NA	NA	0.27	0.02	0.00	0.00
WATER LOADOUT	WLD-2	WLD-2	NA	NA	NA	NA	NA	NA	NA	NA	0.27	0.02	0.00	0.00
FUGITIVES	FUG	FUG	NA	NA	NA	NA	NA	NA	NA	NA	1.23	5.40	0.02	0.08
TOTAL			2.71	11.44	4.12	17.14	0.21	0.92	0.09	0.36	57.46	15.11	0.98	1.17

\* INCLUDES PM CONDENSABLE &amp; PM FILTERABLE FOR ENG-1, ENG-2, ENG-3, ENG-4, ENG-5

\*\* VRU HAS A 98% CAPTURE EFFICIENCY AND IS OFFLINE 5% OF THE YEAR

\*\*\*AOS EMISSIONS ARE REPRESENTED FROM THE CONDENSATE AND WATER TANKS; WHEN THE VRU COMPRESSOR IS DOWN (438 HRS/YR), THE VAPORS ARE SENT TO THE FLARE

**OWNER/OPERATOR:** AURORA USA DEVELOPMENT, LLC  
**FACILITY:** JP HEARD BOWER CDP 1  
**LOCATION:** ATASCOSA, TEXAS  
**EMISSION SOURCE:** COMPRESSOR ENGINE - CAT G3406 NA  
**FIN:** C1  
**EPN:** C1

#### DATA

**EMISSION FACTORS:** EPA AP-42, 07/00 - TABLE 3.2-3, UNCONTROLLED EMISSION FACTORS FOR 4-STROKE RICH-BURN ENGINES. VENDOR DATA.  
**ENGINE MAKE AND MODEL:** CATERPILLAR G3406 NA  
**ENGINE TYPE:** 4-STROKE RICH-BURN  
**ENGINE SPEED (RPM):** 1800  
**HP RATING:** 215  
**ENGINE STACK TEMPERATURE (°F):** 1215  
**ENGINE STACK FLOW RATE (CFM):** 1043  
**OPERATION (HR/YR):** 8760  
**FUEL CONSUMPTION (BTU/HP-HR):** 7915  
**FUEL:** FIELD GAS  
**GAS HEATING VALUE (BTU/SCF):** 1393 JP HEARD A-5H - HP SEPARATOR - SAMPLED 04/12/2013  
**CONTROLS:** NSCR CATALYST  
**MANUFACTURE DATE:** 07/2008

#### CALCULATION METHOD

(LB/MMBTU) (HP) (BTU/HP-HR) (1 TN/2000 LB) (HR/YR) = TN/YR  
 (G/HP-HR) (HP) (1 LB/453.6 G) (1 TN/2000 LB) (HR/YR) = TN/YR

#### EMISSIONS

POLLUTANT	RATING HP	EMISSION FACTOR			OPERATION		EMISSIONS	
		EPA AP-42	ADJUSTED*	SUBPART JJJJ***				
		LB/MMBTU	LB/MMBTU	G/HP-HR	BTU/HP-HR	HR/YR	LB/HR	TN/YR
NOX	215	NA	NA	2.0	7915	8760	0.95	4.15
CO	215	NA	NA	4.0	7915	8760	1.90	8.30
PM TOTAL	215	0.01941	0.02651	NA	7915	8760	0.05	0.20
PM10 FILTERABLE	215	0.0095	0.0130	NA	7915	8760	0.02	0.10
PM CONDENSABLE	215	0.00991	0.01353	NA	7915	8760	0.02	0.10
SO2	215	0.000588	0.000803	NA	7915	8760	0.00	0.01
VOC	215	NA	NA	1.0	7915	8760	0.47	2.08
VOC-TOTAL**	215	NA	NA	NA	7915	8760	0.53	2.10
FORMALDEHYDE	215	0.0205	0.02800	NA	8760	1043	0.05	0.03
METHANOL	215	0.00306	0.00418	NA	7915	8760	0.01	0.03
BENZENE	215	0.00158	0.00216	NA	7915	8760	0.00	0.02
TOLUENE	215	0.000558	0.000762	NA	7915	8760	0.00	0.01
ETHYLBENZENE	215	0.0000248	0.0000339	NA	7915	8760	0.00	0.00
XYLENES	215	0.000195	0.000266	NA	7915	8760	0.00	0.00
N-HEXANE	215	NA	NA	NA	7915	8760	NA	NA
TOTAL HAP							0.07	0.08

\*EPA AP-42 EMISSION FACTORS ADJUSTED FOR GAS HEATING VALUE

\*\*VOC-TOTAL INCLUDES FORMALDEHYDE

\*\*\*EMISSION FACTORS ARE BASED ON 40 CFR PART 60 SUBPART JJJJ

**OWNER/OPERATOR:** AURORA USA DEVELOPMENT, LLC  
**FACILITY:** JP HEARD BOWER CDP 1  
**LOCATION:** ATASCOSA, TEXAS  
**EMISSION SOURCE:** COMPRESSOR ENGINE - CAT G3304 NA  
**FIN:** C2  
**EPN:** C2

#### DATA

**EMISSION FACTORS:** EPA AP-42, 07/00 - TABLE 3.2-3, UNCONTROLLED EMISSION FACTORS FOR 4-STROKE RICH-BURN ENGINES. VENDOR DATA.  
**ENGINE MAKE AND MODEL:** CATERPILLAR G3406 NA  
**ENGINE TYPE:** 4-STROKE RICH-BURN  
**ENGINE SPEED (RPM):** 1800  
**ENGINE EXHAUST FLOWRATE (CFM):** 459  
**ENGINE EXHAUST GAS TEMPERATURE (°F):** 1105  
**HP RATING:** 95  
**OPERATION (HR/YR):** 8760  
**FUEL CONSUMPTION (BTU/HP-HR):** 9118  
**FUEL:** FIELD GAS  
**GAS HEATING VALUE (BTU/SCF):** 1393 JP HEARD A-5H - HP SEPARATOR - SAMPLED 04/12/2013  
**CONTROLS:** NSCR CATALYST  
**MANUFACTURE DATE:** 12/2005

#### CALCULATION METHOD

(LB/MMBTU) (HP) (BTU/HP-HR) (1 TN/2000 LB) (HR/YR) = TN/YR  
 (G/HP-HR) (HP) (1 LB/453.6 G) (1 TN/2000 LB) (HR/YR) = TN/YR

#### EMISSIONS

POLLUTANT	RATING HP	EMISSION FACTOR			OPERATION		EMISSIONS	
		EPA AP-42	ADJUSTED*	VENDOR**				
		LB/MMBTU	LB/MMBTU	G/HP-HR	BTU/HP-HR	HR/YR	LB/HR	TN/YR
NOX	95	NA	NA	0.70	9118	8760	0.15	0.64
CO	95	NA	NA	0.70	9118	8760	0.15	0.64
PM TOTAL	95	0.01941	0.02651	NA	9118	8760	0.02	0.10
PM10 FILTERABLE	95	0.0095	0.0130	NA	9118	8760	0.01	0.05
PM CONDENSABLE	95	0.00991	0.01353	NA	9118	8760	0.01	0.05
SO2	95	0.000588	0.000803	NA	9118	8760	0.00	0.00
VOC	95	NA	NA	0.26	9118	8760	0.05	0.24
VOC-TOTAL***	95	NA	NA	NA	9118	8760	0.08	0.34
FORMALDEHYDE	95	0.0205	0.02800	NA	9118	8760	0.02	0.11
METHANOL	95	0.00306	0.00418	NA	9118	8760	0.00	0.02
BENZENE	95	0.00158	0.00216	NA	9118	8760	0.00	0.01
TOLUENE	95	0.000558	0.000762	NA	9118	8760	0.00	0.00
ETHYLBENZENE	95	0.0000248	0.0000339	NA	9118	8760	NA	NA
XYLENES	95	0.000195	0.000266	NA	9118	8760	0.00	0.00
N-HEXANE	95	NA	NA	NA	9118	8760	NA	NA
TOTAL HAP							0.03	0.13

\* EPA AP-42 EMISSION FACTOR ADJUSTED FOR GAS HEATING VALUE

\*\* VENDOR CATALYST PERFORMANCE DATA FOR NOX AND VOC

\*\*\* VOC-TOTAL INCLUDES FORMALDEHYDE

**OWNER/OPERATOR:** AURORA USA DEVELOPMENT, LLC  
**FACILITY:** JP HEARD BOWER CDP 1  
**LOCATION:** ATASCOSA, TEXAS  
**EMISSION SOURCE:** COMPRESSOR ENGINE - CAT G3306 NA  
**FIN:** C3  
**EPN:** C3

#### DATA

**EMISSION FACTORS:** EPA AP-42, 07/00 - TABLE 3.2-3, UNCONTROLLED EMISSION FACTORS FOR 4-STROKE RICH-BURN ENGINES. VENDOR DATA.  
**ENGINE MAKE AND MODEL:** CATERPILLAR G3306 NA  
**ENGINE TYPE:** 4-STROKE RICH-BURN  
**ENGINE SPEED (RPM):** 1800  
**HP RATING:** 145  
**ENGINE STACK TEMPERATURE (°F):** 1063  
**ENGINE STACK FLOW RATE (CFM):** 634  
**OPERATION (HR/YR):** 8760  
**FUEL CONSUMPTION (BTU/HP-HR):** 7775  
**FUEL:** FIELD GAS  
**GAS HEATING VALUE (BTU/SCF):** 1393 JP HEARD A-5H - HP SEPARATOR - SAMPLED 04/12/2013  
**CONTROLS:** NSCR CATALYST  
**MANUFACTURE DATE:** 12/1996

#### CALCULATION METHOD

(LB/MMBTU) (HP) (BTU/HP-HR) (1 TN/2000 LB) (HR/YR) = TN/YR  
 (G/HP-HR) (HP) (1 LB/453.6 G) (1 TN/2000 LB) (HR/YR) = TN/YR

#### EMISSIONS

POLLUTANT	RATING HP	EMISSION FACTOR			OPERATION		EMISSIONS	
		EPA AP-42	ADJUSTED*	VENDOR**	BTU/HP-HR	HR/YR	LB/HR	TN/YR
		LB/MMBTU	LB/MMBTU	G/HP-HR				
NOX	145	NA	NA	0.6	7775	8760	0.18	0.77
CO	145	NA	NA	0.7	7775	8760	0.21	0.92
PM TOTAL	145	0.01941	0.02651	NA	7775	8760	0.03	0.13
PM10 FILTERABLE	145	0.0095	0.0130	NA	7775	8760	0.01	0.06
PM CONDENSABLE	145	0.00991	0.01353	NA	7775	8760	0.02	0.07
SO2	145	0.000588	0.000803	NA	7775	8760	0.00	0.00
VOC	145	NA	NA	0.2	7775	8760	0.05	0.24
VOC-TOTAL	145	NA	NA	0.3	7775	8760	0.09	0.38
FORMALDEHYDE	145	NA	NA	0.1	7775	8760	0.03	0.14
METHANOL	145	0.00306	0.00418	NA	7775	8760	0.00	0.02
BENZENE	145	0.00158	0.00216	NA	7775	8760	0.00	0.01
TOLUENE	145	0.000558	0.000762	NA	7775	8760	0.00	0.00
ETHYLBENZENE	145	0.0000248	0.0000339	NA	7775	8760	0.00	0.00
XYLENES	145	0.000195	0.000266	NA	7775	8760	0.00	0.00
N-HEXANE	145	NA	NA	NA	7775	8760	NA	NA
TOTAL HAP							0.04	0.18

\*EPA AP-42 EMISSION FACTORS ADJUSTED FOR GAS HEATING VALUE

\*\*VENDOR CATALYST PERFORMANCE DATA FOR NOX AND VOC

\*\*\*VOC-TOTAL INCLUDES FORMALDEHYDE

**OWNER/OPERATOR:** AURORA USA DEVELOPMENT, LLC  
**FACILITY:** JP HEARD BOWER CDP 1  
**LOCATION:** ATASCOSA, TEXAS  
**EMISSION SOURCE:** COMPRESSOR ENGINE - CAT G379 NA  
**FIN:** C4  
**EPN:** C4

# **DATA**

**EMISSION FACTORS:** EPA AP-42, 07/00 - TABLE 3.2-3, UNCONTROLLED EMISSION FACTORS FOR 4-STROKE RICH-BURN ENGINES. VENDOR DATA.  
**ENGINE MAKE AND MODEL:** CATERPILLAR G379 NA  
**ENGINE TYPE:** 4-STROKE RICH-BURN  
**ENGINE SPEED (RPM):** 1200  
**HP RATING:** 330  
**ENGINE STACK TEMPERATURE (°F):** 1086  
**ENGINE STACK FLOW RATE (CFM):** 1398  
**OPERATION (HR/YR):** 8760  
**FUEL CONSUMPTION (BTU/HP-HR):** 7814  
**FUEL:** NATURAL GAS  
**GAS HEATING VALUE (BTU/SCF):** 1393 JP HEARD A-5H - HP SEPARATOR - SAMPLED 04/12/2013  
**CONTROLS:** NSCR CATALYST  
**MANUFACTURE DATE:** 02/1986

# **CALCULATION METHOD**

(LB/MMBTU) (HP) (BTU/HP-HR) (1 TN/2000 LB) (HR/YR) = TN/YR  
 (G/HP-HR) (HP) (1 LB/453.6 G) (1 TN/2000 LB) (HR/YR) = TN/YR

# **EMISSIONS**

POLLUTANT	RATING HP	EMISSION FACTOR			OPERATION		EMISSIONS	
		EPA AP-42	ADJUSTED*	VENDOR**	BTU/HP-HR	HR/YR	LB/HR	TN/YR
		LB/MMBTU	LB/MMBTU	G/HP-HR				
NOX	330	NA	NA	0.7	7814	8760	0.47	2.07
CO	330	NA	NA	0.6	7814	8760	0.43	1.88
PM TOTAL	330	0.01941	0.02651	NA	7814	8760	0.07	0.30
PM10 FILTERABLE	330	0.0095	0.0130	NA	7814	8760	0.03	0.15
PM CONDENSABLE	330	0.00991	0.01353	NA	7814	8760	0.03	0.15
SO2	330	0.000588	0.000803	NA	7814	8760	0.00	0.01
VOC	330	NA	NA	0.1	7814	8760	0.10	0.45
VOC-TOTAL	330	NA	NA	0.3	7814	8760	0.20	0.86
FORMALDEHYDE	330	NA	NA	0.13	7814	8760	0.09	0.41
METHANOL	330	0.00306	0.00418	NA	7814	8760	0.01	0.05
BENZENE	330	0.00158	0.00216	NA	7814	8760	0.01	0.02
TOLUENE	330	0.000558	0.000762	NA	7814	8760	0.00	0.01
ETHYLBENZENE	330	0.0000248	0.0000339	NA	7814	8760	0.00	0.00
XYLENES	330	0.000195	0.000266	NA	7814	8760	0.00	0.00
N-HEXANE	330	NA	NA	NA	7814	8760	NA	NA
TOTAL HAP							0.11	0.50

\*EPA AP-42 EMISSION FACTORS ADJUSTED FOR GAS HEATING VALUE

\*\*VENDOR CATALYST PERFORMANCE DATA FOR NOX AND VOC

\*\*\*VOC-TOTAL INCLUDES FORMALDEHYDE

**OWNER/OPERATOR:** AURORA USA DEVELOPMENT, LLC  
**FACILITY:** JP HEARD BOWER CDP 1  
**LOCATION:** ATASCOSA, TEXAS  
**EMISSION SOURCE:** COMPRESSOR ENGINE - BUCKS ENGINE - VORTEC 5.7L  
**FIN:** ENG-5  
**EPN:** ENG-5

#### DATA

**EMISSION FACTORS:** EPA AP-42, 07/00 - TABLE 3.2-3, UNCONTROLLED EMISSION FACTORS FOR 4-STROKE RICH-BURN ENGINES. VENDOR DATA.  
**ENGINE MAKE AND MODEL:** BUCKS ENGINE - VORTEC 5.7L  
**ENGINE TYPE:** 4-STROKE RICH-BURN  
**ENGINE SPEED (RPM):** 1800  
**HP RATING:** 92  
**ENGINE STACK TEMPERATURE (°F):** 1200  
**ENGINE STACK FLOW RATE (CFM):** 650  
**OPERATION (HR/YR):** 8760  
**FUEL CONSUMPTION (BTU/HP-HR):** 9000  
**FUEL:** NATURAL GAS  
**GAS HEATING VALUE (BTU/SCF):** 1393 JP HEARD A-5H - HP SEPARATOR - SAMPLED 04/12/2013  
**CONTROLS:** NSCR CATALYST  
**MANUFACTURE DATE:** 11/15/2012

#### CALCULATION METHOD

(LB/MMBTU) (HP) (BTU/HP-HR) (1 TN/2000 LB) (HR/YR) = TN/YR  
 (G/HP-HR) (HP) (1 LB/453.6 G) (1 TN/2000 LB) (HR/YR) = TN/YR

#### EMISSIONS

POLLUTANT	RATING HP	EMISSION FACTOR			OPERATION		EMISSIONS	
		EPA AP-42	ADJUSTED*	SUBPART JJJJ				
		LB/MMBTU	LB/MMBTU	G/HP-HR	BTU/HP-HR	HR/YR	LB/HR	TN/YR
NOX	92	NA	NA	2.8	9000	8760	0.57	2.49
CO	92	NA	NA	4.8	9000	8760	0.97	4.26
PM TOTAL	92	0.01941	0.02651	NA	9000	8760	0.02	0.10
PM10 FILTERABLE	92	0.0095	0.0130	NA	9000	8760	0.01	0.05
PM CONDENSABLE	92	0.00991	0.01353	NA	9000	8760	0.01	0.05
SO2	92	0.000588	0.000803	NA	9000	8760	0.00	0.00
VOC	92	NA	NA	0.7	9000	8760	0.14	0.62
VOC-TOTAL**	92	NA	NA	NA	9000	8760	0.17	0.72
FORMALDEHYDE	92	0.0205	0.02800	NA	9000	8760	0.02	0.10
METHANOL	92	0.00306	0.00418	NA	9000	8760	0.00	0.02
BENZENE	92	0.00158	0.00216	NA	9000	8760	0.00	0.01
TOLUENE	92	0.000558	0.000762	NA	9000	8760	0.00	0.00
ETHYLBENZENE	92	0.0000248	0.0000339	NA	9000	8760	0.00	0.00
XYLENES	92	0.000195	0.000266	NA	9000	8760	0.00	0.00
N-HEXANE	92	NA	NA	NA	9000	8760	NA	NA
TOTAL HAP							0.03	0.13

\*EPA AP-42 EMISSION FACTORS ADJUSTED FOR GAS HEATING VALUE

\*\*VOC-TOTAL INCLUDES FORMALDEHYDE

\*\*\*EMISSION FACTORS ARE BASED ON 40 CFR PART 60 SUBPART JJJJ

**OWNER/OPERATOR:** AURORA USA DEVELOPMENT, LLC  
**FACILITY:** JP HEARD BOWER CDP 1  
**LOCATION:** ATASCOSA, TEXAS  
**EMISSION SOURCE:** LINE HEATER  
**FIN:** H1,H2  
**EPN:** H1,H2

# **DATA**

**EMISSION FACTORS:** EPA AP-42, 07/98 - TABLE 1.4-1, EMISSION FACTORS FOR NITROGEN OXIDES (NOX) AND CARBON MONOXIDE (CO) FROM NATURAL COMBUSTION; TABLE 1.4-2, EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION; TABLE 1.4-3, EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM NATURAL GAS COMBUSTION.

**BURNER RATING (MMBTU/HR):** 1.000  
**OPERATION (HR/YR):** 8760  
**GAS HEATING VALUE (BTU/SCF):** 1339 JP HEARD A-5H - HP SEPARATOR - SAMPLED 04/12/2013  
**FUEL H2S CONTENT (MOL%):** 0.02  
**FUEL:** NATURAL GAS  
**CONTROLS:** NONE

# **CALCULATION METHOD**

$(\text{MMBTU/HR}) \times (\text{SCF/BTU}) \times (\text{LB/MMSCF}) \times (1 \text{ TN}/2,000 \text{ LB}) \times (\text{HR/YR}) = \text{TN/YR}$

# **EMISSIONS**

POLLUTANT	RATING MMBTU/HR	EMISSION FACTOR LB/MMSCF	ADJUSTED FACTOR* LB/MMSCF	OPERATION HR/YR	HEAT VALUE BTU/SCF	EMISSIONS	
						LB/HR	TN/YR
NOX	1.000	100	131	8760	1339	0.10	0.43
CO	1.000	84	110	8760	1339	0.08	0.36
PM	1.000	8	10	8760	1339	0.01	0.03
SO2	1.000	0.6	0.8	8760	1339	0.03	0.11
THC	1.000	11	14	8760	1339	0.01	0.05
VOC	1.000	5.5	7.2	8760	1339	0.01	0.02
FORMALDEHYDE	1.000	0.075	0.098	8760	1339	0.00	0.00
BENZENE	1.000	0.0021	0.0028	8760	1339	0.00	0.00
TOLUENE	1.000	0.0034	0.0045	8760	1339	0.00	0.00
HEXANE	1.000	1.8	2.4	8760	1339	0.00	0.01
TOTAL HAP						0.00	0.01

\* EPA AP-42 EMISSION FACTOR ADJUSTED FOR GAS HEATING VALUE

**OWNER/OPERATOR:** AURORA USA DEVELOPMENT, LLC  
**FACILITY:** JP HEARD BOWER CDP 1  
**LOCATION:** ATASCOSA, TEXAS  
**EMISSION SOURCE:** HEATER TREATER  
**FIN:** H3  
**EPN:** H3

#### DATA

**EMISSION FACTORS:** EPA AP-42, 07/98 - TABLE 1.4-1, EMISSION FACTORS FOR NITROGEN OXIDES (NOX) AND CARBON MONOXIDE (CO) FROM NATURAL GAS COMBUSTION; TABLE 1.4-2, EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION  
**BURNER RATING (MMBTU/HR):** 1.000  
**OPERATION (HR/YR):** 8760  
**GAS HEATING VALUE (BTU/SCF):** 1393 JP HEARD A-5H - HP SEPARATOR - SAMPLED 04/12/2013  
**FUEL H2S CONTENT (MOL%):** 0.02  
**FUEL:** NATURAL GAS

#### CALCULATION METHOD

(MMBTU/HR) (SCF/BTU) (LB/MMSCF) (1 TN/2,000 LB) (HR/YR) = TN/YR

#### EMISSIONS

POLLUTANT	RATING MMBTU/HR	EMISSION FACTOR LB/MMSCF	ADJUSTED FACTOR* LB/MMSCF	OPERATION HR/YR	HEAT VALUE BTU/SCF	EMISSIONS	
						LB/HR	TN/YR
NOX	1.000	100	137	8760	1393	0.10	0.43
CO	1.000	84	115	8760	1393	0.08	0.36
PM	1.000	7.6	10.4	8760	1393	0.01	0.03
SO2	1.000	0.6	0.8	8760	1393	0.03	0.11
THC	1.000	11.0	15.0	8760	1393	0.01	0.05
VOC	1.000	5.5	7.5	8760	1393	0.01	0.02
FORMALDEHYDE	1.000	0.075	0.102	8760	1393	0.00	0.00
BENZENE	1.000	0.0021	0.0029	8760	1393	0.00	0.00
TOLUENE	1.000	0.0034	0.0046	8760	1393	0.00	0.00
HEXANE	1.000	1.8	2.5	8760	1393	0.00	0.01
TOTAL HAP						0.00	0.01

\* EPA AP-42 EMISSION FACTOR ADJUSTED FOR FUEL GAS HEATING VALUE

**OWNER/OPERATOR:** AURORA USA DEVELOPMENT, LLC  
**FACILITY:** JP HEARD BOWER CDP 1  
**LOCATION:** ATASCOSA, TEXAS  
**EMISSION SOURCE:** 400-BBL CONDENSATE TANK  
**FIN:** TK1, TK2, TK3, TK4, TK5, TK6, TK7, TK8, TK9, TK10, CTK-11, CTK-12  
**EPN:** VRU, FLARE

#### DATA

**EMISSION FACTORS-FLASH:** JP HEARD BOWER NO. 5H - GAS EVOLVED FROM HYDROCARBON LIQUID FLASHED - SAMPLED 01/24/2012  
**EMISSION FACTORS-BREATHING/WORKING:** EPA TANKS 4.0  
**EMISSION FACTORS-NOX/CO:** TCEQ MEMORANDUM - 02/13/1995 - FLARE TIPS - FLARE FACTION FOR NOX AND CO

POLLUTANT	LB/MMBTU	
	> 1000 BTU/SCF	192-1000 BTU/SCF
NOX	0.1380	0.0641
CO	0.2755	0.5496

**HEATING VALUE (BTU/SCF):** 2281 JP HEARD BOWER NO. 5H - GAS EVOLVED FROM HYDROCARBON LIQUID FLASHED - SAMPLED 01/24/2012  
**THROUGHPUT (BBL/DAY):** 10  
**GAS TO OIL RATIO (SCF/BBL):** 68.1  
**API GRAVITY @ 60°F - APIG:** 43.95 STOCK TANK FLUID PROPERTIES - 01/24/2012  
**REID VAPOR PRESSURE (PSI) - RVP:** 6.17 STOCK TANK FLUID PROPERTIES - 01/24/2012  
**CONTROLS:** VRU 98% CAPTURE EFFICIENCY  
**ACS:** FLARE (98% CONTROL EFFICIENCY) VRU IS OFFLINE 5% OF THE YEAR

#### CALCULATION METHOD

FLASHING - VOC: (LB/LB-MOLE) (14.696 PSIA) (SCF/DAY) (MOL%/100) / (R) (530 R°) = LB/DAY  
 NOX, CO: (SCF/DAY) (BTU/SCF) (LB/MMBTU) = LB/DAY  
 SO2: (SCF/HHR) (MOL% H2S/100) (84 LB SO2/LB-MOLE) (LB-MOLE/379.5 SCF)

#### FLASHING:

Downtime - 438 hr/yr

POLLUTANT	MOL%	MOL WT	PRESSURE	FLOW RATE	R	TEMP	EMISSIONS									
							Normal Operating Scenario					Alternate Operating Scenario				
							Uncontrolled		Controlled - VRU		Downtime - VRU	Flare		Total	LB/HR	TN/YR
							LB/HR	TN/YR	LB/HR	TN/YR		LB/HR	TN/YR			
TOTAL	100.000						2.91	12.13	0.06	0.24	2.91	0.64	0.06	0.01	0.12	0.26
THC	98.674						2.87	11.96	0.06	0.24	2.87	0.63	0.06	0.01	0.11	0.25
VOC	51.286						2.06	8.56	0.04	0.17	2.06	0.45	0.04	0.01	0.08	0.18
TOTAL HAP	0.000						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HYDROGEN SULFIDE	0.020	34.00	14.7	681	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CARBON DIOXIDE	1.142	44.00	14.7	681	10.73	530	0.04	0.15	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00
NITROGEN	0.164	28.00	14.7	681	10.73	530	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
METHANE	22.320	16.04	14.7	681	10.73	530	0.26	1.09	0.01	0.02	0.28	0.06	0.01	0.00	0.01	0.02
ETHANE	25.068	30.07	14.7	681	10.73	530	0.55	2.30	0.01	0.05	0.55	0.12	0.01	0.00	0.02	0.05
PROPANE	26.891	44.10	14.7	681	10.73	530	0.87	3.62	0.02	0.07	0.87	0.19	0.02	0.00	0.03	0.06
BUTANE	15.183	58.12	14.7	681	10.73	530	0.65	2.69	0.01	0.05	0.65	0.14	0.01	0.00	0.03	0.06
PENTANE	5.531	72.15	14.7	681	10.73	530	0.29	1.22	0.01	0.02	0.29	0.06	0.01	0.00	0.01	0.03
HEXANE	2.109	86.17	14.7	681	10.73	530	0.13	0.55	0.00	0.01	0.13	0.03	0.00	0.00	0.01	0.01
HEPTANE	1.572	100.20	14.7	681	10.73	530	0.12	0.48	0.00	0.01	0.12	0.03	0.00	0.00	0.00	0.01
OCTANE	0.000	114.23	14.7	681	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NONANE	0.000	128.28	14.7	681	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DECANE	0.000	142.00	14.7	681	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UNDECANE	0.000	200.00	15.7	681	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BENZENE	0.000	78.11	14.7	681	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOLUENE	0.000	92.14	14.7	681	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ETHYLBENZENE	0.000	106.16	14.7	681	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
XYLENES	0.000	106.16	14.7	681	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-HEXANE	0.000	86.10	14.7	681	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,2,4-TRIMETHYLPENTANE	0.000	114.24	14.7	681	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

#### BREATHING/WORKING:

POLLUTANT	WT%	EMISSIONS									
		Normal Operating Scenario					Alternate Operating Scenario				
		UNCONTROLLED		Controlled - VRU		Downtime - VRU	Flare		Total	LB/HR	TN/YR
		LB/HR	TN/YR	LB/HR	TN/YR		LB/HR	TN/YR			
TOTAL	100.000	0.23	0.73	0.00	0.06	0.23	0.05	0.00	0.01	0.06	
VOC	84.756	0.20	0.62	0.00	0.05	0.20	0.04	0.00	0.01	0.05	
HYDROGEN SULFIDE	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL HAP	1.052	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
BENZENE	0.097	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

\* EPA TANKS 4.0 - JULY EMISSIONS

#### TOTAL = FLASHING + BREATHING/WORKING:

POLLUTANT	TOTAL EMISSIONS	
	LB/HR	TN/YR
VOC	0.09	0.23
HYDROGEN SULFIDE	0.00	0.00
TOTAL HAP	0.00	0.00
BENZENE	0.00	0.00

POLLUTANT	FLOW RATE	HEAT VALUE	EMISSION FACTOR	TOTAL EMISSIONS	
				LB/HR	TN/YR
NOX	681	2281	0.1380	0.01	0.00
CO	681	2281	0.2755	0.02	0.00

POLLUTANT	H2S	FLOW RATE		EMISSIONS	
		SCF/DAY	SCF/HHR	LB/HR	TN/YR
SO2	0.02	681	28	0.00	0.00

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification: AURORA - HEARD CDP1 - CTK  
City: Texas  
State: Texas  
Company: Aurora USA Development, LLC  
Type of Tank: Vertical Fixed Roof Tank  
Description: 400-BBL CONDENSATE TANK FIN:CTK-1 - CTK-12

**Tank Dimensions**

Shell Height (ft): 20.00  
Diameter (ft): 12.00  
Liquid Height (ft): 16.00  
Avg. Liquid Height (ft): 10.00  
Volume (gallons): 13,536.47  
Turnovers: 11.32  
Net Throughput(gal/yr): 153,300.00  
Is Tank Heated (y/n): N

**Paint Characteristics**

Shell Color/Shade: Gray/Light  
Shell Condition: Good  
Roof Color/Shade: Gray/Light  
Roof Condition: Good

**Roof Characteristics**

Type: Dome  
Height (ft): 0.00  
Radius (ft) (Dome Roof): 0.00

**Breather Vent Settings**

Vacuum Settings (psig): -0.03  
Pressure Settings (psig): 0.03

Meteorological Data used in Emissions Calculations: San Antonio, Texas (Avg Atmospheric Pressure = 14.33 psia)

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Liquid Contents of Storage Tank**

**AURORA - HEARD CDP1 - CTK - Vertical Fixed Roof Tank**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Crude oil (RVP 5)	Jan	65.58	57.75	73.37	70.86	3.2059	2.7528	3.7171	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Feb	68.47	59.43	77.52	70.86	3.3897	2.8455	4.0143	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Mar	73.29	63.24	83.33	70.86	3.7116	3.0657	4.4820	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Apr	77.82	67.10	88.15	70.86	4.0221	3.3021	4.8622	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	May	80.99	70.29	91.68	70.86	4.2789	3.5087	5.1733	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Jun	84.89	73.42	96.38	70.86	4.5886	3.7210	5.6097	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Jul	88.35	74.54	98.17	70.86	4.7097	3.7990	5.7858	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Aug	85.73	74.28	97.18	70.86	4.6576	3.7811	5.6883	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Sep	81.87	71.77	91.98	70.86	4.3481	3.6074	5.2005	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Oct	78.65	67.18	86.14	70.86	3.9507	3.3059	4.6921	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Nov	70.85	62.60	79.10	70.86	3.5459	3.0279	4.1325	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Dec	66.49	58.98	73.99	70.86	3.2838	2.8206	3.7608	50.0000			207.00	Option 4: RVP=5

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)**

**AURORA - HEARD CDP1 - CTK - Vertical Fixed Roof Tank**

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	53 5270	59 1445	79 2133	86 7336	96 7167	107 9910	118 2154	113 0894	89 7407	79 1987	59 9705	52 1717
Vapor Space Volume (cu ft):	1,224 0621	1,224 0621	1,224 0621	1,224 0621	1,224 0621	1,224 0621	1,224 0621	1,224 0621	1,224 0621	1,224 0621	1,224 0621	1,224 0621

## TANKS 4.0 Report

Vapor Density (lb/cu ft):	0.0284	0.0299	0.0324	0.0349	0.0369	0.0393	0.0402	0.0398	0.0374	0.0343	0.0311	0.0289
Vapor Space Expansion Factor:	0.1408	0.1699	0.2013	0.2239	0.2388	0.2721	0.2869	0.2750	0.2283	0.1986	0.1591	0.1366
Vented Vapor Saturation Factor:	0.3522	0.3396	0.3196	0.3024	0.2896	0.2753	0.2702	0.2724	0.2863	0.3062	0.3296	0.3482
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):	1,224,0621	1,224,0621	1,224,0621	1,224,0621	1,224,0621	1,224,0621	1,224,0621	1,224,0621	1,224,0621	1,224,0621	1,224,0621	1,224,0621
Tank Diameter (ft):	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000
Vapor Space Outage (ft):	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231
Tank Shell Height (ft):	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000
Average Liquid Height (ft):	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000
Roof Outage (ft):	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231
Roof Outage (Dome Roof):												
Roof Outage (ft):	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231
Dome Radius (ft):	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000
Shell Radius (ft):	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000
Vapor Density												
Vapor Density (lb/cu ft):	0.0284	0.0299	0.0324	0.0349	0.0369	0.0393	0.0402	0.0398	0.0374	0.0343	0.0311	0.0289
Vapor Molecular Weight (lb/lb-mole):	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.2059	3.3897	3.7116	4.0221	4.2769	4.5886	4.7097	4.6576	4.3461	3.9507	3.5459	3.2636
Daily Avg. Liquid Surface Temp. (deg. R):	525.2257	528.1426	532.9572	537.2943	540.8581	544.5630	546.0237	545.3991	541.5447	536.3206	530.5218	526.1558
Daily Average Ambient Temp. (deg. F):	49.3500	53.5000	61.6000	69.3500	75.5000	82.2000	85.0000	84.9000	79.2500	70.2500	60.3500	52.1500
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg. R):	530.5267	530.5267	530.5267	530.5267	530.5267	530.5267	530.5267	530.5267	530.5267	530.5267	530.5267	530.5267
Tank Paint Solar Absorptance (Shell):	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400
Daily Total Solar Insolation Factor (Btu/sq ft day):	975.6053	1,231.3249	1,524.4824	1,741.8123	1,896.0055	2,120.3154	2,173.9340	2,037.8252	1,717.0652	1,420.7351	1,082.5252	904.8540
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:	0.1408	0.1699	0.2013	0.2239	0.2388	0.2721	0.2869	0.2750	0.2283	0.1986	0.1591	0.1366
Daily Vapor Temperature Range (deg. R):	31.2392	36.1856	40.1862	42.1042	42.7796	45.8832	47.2899	45.7879	40.4340	37.9695	32.9998	30.0254
Daily Vapor Pressure Range (psia):	0.9644	1.1688	1.3963	1.5801	1.6646	1.8887	1.9868	1.9072	1.5931	1.3862	1.1046	0.9402
Breather Vent Press. Setting Range (psia):	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.2059	3.3897	3.7116	4.0221	4.2769	4.5886	4.7097	4.6576	4.3461	3.9507	3.5459	3.2636
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.7528	2.8455	3.0657	3.3021	3.5087	3.7210	3.7990	3.7811	3.6074	3.3059	3.0279	2.8206
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	3.7171	4.0143	4.4620	4.8622	5.1733	5.6097	5.7858	5.6883	5.2005	4.6921	4.1325	3.7608
Daily Avg. Liquid Surface Temp. (deg. R):	525.2257	528.1426	532.9572	537.2943	540.8581	544.5630	546.0237	545.3991	541.5447	536.3206	530.5218	526.1558
Daily Min. Liquid Surface Temp. (deg. R):	517.4159	519.0962	522.9106	526.7883	529.9932	533.9922	534.2063	533.9521	531.4362	526.8262	522.2718	518.6495
Daily Max. Liquid Surface Temp. (deg. R):	533.0355	537.1890	543.0037	547.8204	551.3530	556.0338	557.8412	556.8481	551.6532	545.8130	538.7717	533.6622
Daily Ambient Temp. Range (deg. R):	22.9000	24.4000	23.8000	21.9000	19.6000	19.2000	20.0000	20.8000	20.1000	22.9000	23.1000	22.7000
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:	0.3522	0.3396	0.3196	0.3024	0.2896	0.2753	0.2702	0.2724	0.2863	0.3062	0.3296	0.3482
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.2059	3.3897	3.7116	4.0221	4.2769	4.5886	4.7097	4.6576	4.3461	3.9507	3.5459	3.2636
Vapor Space Outage (ft):	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231
Working Losses (lb):												
Vapor Molecular Weight (lb/lb-mole):	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.2059	3.3897	3.7116	4.0221	4.2769	4.5886	4.7097	4.6576	4.3461	3.9507	3.5459	3.2636
Net Throughput (gal/mo.):	12,775.0000	12,775.0000	12,775.0000	12,775.0000	12,775.0000	12,775.0000	12,775.0000	12,775.0000	12,775.0000	12,775.0000	12,775.0000	12,775.0000
Annual Turnovers:	11.3250	11.3250	11.3250	11.3250	11.3250	11.3250	11.3250	11.3250	11.3250	11.3250	11.3250	11.3250
Turnover Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Maximum Liquid Volume (gal):	13,536.4740	13,536.4740	13,536.4740	13,536.4740	13,536.4740	13,536.4740	13,536.4740	13,536.4740	13,536.4740	13,536.4740	13,536.4740	13,536.4740
Maximum Liquid Height (ft):	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000
Tank Diameter (ft):	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000
Working Loss Product Factor:	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500
Total Losses (lb):	90.0939	97.8087	121.5493	132.6109	145.5000	160.3295	171.8357	166.2153	139.3139	124.2621	100.4159	89.3972

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Individual Tank Emission Totals**

**Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December**

**AURORA - HEARD CDP1 - CTK - Vertical Fixed Roof Tank**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	543.72	995.71	1,539.43

OWNER/OPERATOR:  
FACILITY:  
LOCATION:  
EMISSION SOURCE:  
FIN:  
EPN:

AURORA USA DEVELOPMENT, LLC  
JP HEARD BOWER CDP 1  
ATASCOSA, TEXAS  
400-BBL WATER TANK  
WTK-1,WTK-2,WTK-3,WTK-4  
VRU, FLARE

DATA  
EMISSION FACTORS - FLASH:  
EMISSION FACTORS - BREATHWORK:  
EMISSION FACTORS - NOX CO:

JP HEARD BOWER NO. 5H - GAS EVOLVED FROM HYDROCARBON LIQUID FLASHED - SAMPLED 01/24/2012  
EPA TANKS 4.0  
TCEQ MEMORANDUM - 02/13/1965 - FLARE TIPS - FLARE FACTION FOR NOX AND CO

POLLUTANT	LB/MMBTU	
	> 1000 BTU/SCF	102-1000 BTU/SCF
NOX	0.1380	0.0841
CO	0.2755	0.5486

HEATING VALUE (BTU/SCF):  
THROUGHPUT (BBU/DAY):  
GAS TO OIL RATIO (SCF/BBU):  
API GRAVITY @ 60°F - APIG:  
REID VAPOR PRESSURE (PSI) - RVP:  
CONDENSATE CUT (%):  
CONTROLS:  
AOS:

2281 JP HEARD BOWER NO. 5H - GAS EVOLVED FROM HYDROCARBON LIQUID FLASHED - SAMPLED 01/24/2012  
62.5  
88.1  
43.95 STOCK TANK FLUID PROPERTIES - 01/24/2012  
8.17 STOCK TANK FLUID PROPERTIES - 01/24/2012  
1.00  
VRU 96% CAPTURE EFFICIENCY  
FLARE (96% CONTROL EFFICIENCY) VRU IS OFFLINE 5% OF THE YEAR

#### CALCULATION METHOD

FLASHING - VOC: (LB/LB-MOLE) (14.886 PSIA) (SCF/DAY) (MOL%/100) / (R) (530 R°) = LB/DAY  
NOX, CO: (SCF/DAY) (BTU/SCF) (LB/MMBTU) = LB/DAY  
SO2: (SCF/Hr) (MOL% H2S/100) (84 LB SO2/LB-MOLE) (LB-MOLE/379.5 SCF)

FLASHING:

Downtime - 438 hr/yr

POLLUTANT	MOL%	MOL WT LB/LB-MOL	PRESSURE PSI	FLOW RATE SCF/DAY	R	TEMP R°	EMISSIONS											
							Normal Operating Scenario						Alternate Operating Scenario					
							Uncontrolled		1% Condensate Cut		Controlled - VRU		Downtime - VRU		Flare		Total	
							LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR
TOTAL	100.000						18.21	75.78	0.18	0.78	0.00	0.02	0.18	0.04	0.00	0.00	0.01	0.02
THC	96.874						17.98	74.72	0.18	0.75	0.00	0.01	0.18	0.04	0.00	0.00	0.01	0.02
VOC	51.286						12.86	53.52	0.13	0.54	0.00	0.01	0.13	0.03	0.00	0.00	0.01	0.01
TOTAL HAP	0.000						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HYDROGEN SULFIDE	0.020	34.00	14.7	4258	10.73	530	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CARBON DIOXIDE	1.142	44.00	14.7	4258	10.73	530	0.23	0.96	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NITROGEN	0.164	28.00	14.7	4258	10.73	530	0.02	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
METHANE	22.320	16.04	14.7	4258	10.73	530	1.64	6.83	0.02	0.07	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
ETHANE	25.068	30.07	14.7	4258	10.73	530	3.45	14.37	0.03	0.14	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00
PROPANE	28.861	44.10	14.7	4258	10.73	530	5.43	22.61	0.05	0.23	0.00	0.00	0.05	0.01	0.00	0.00	0.00	0.00
BUTANE	15.183	58.12	14.7	4258	10.73	530	4.04	16.83	0.04	0.17	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00
PENTANE	5.531	72.15	14.7	4258	10.73	530	1.83	7.61	0.02	0.08	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
HEXANE	2.109	86.17	14.7	4258	10.73	530	0.83	3.47	0.01	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
HEPTANE	1.572	100.20	14.7	4258	10.73	530	0.72	3.00	0.01	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
OCTANE	0.000	114.23	14.7	4258	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NONANE	0.000	128.26	14.7	4258	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DECANE	0.000	142.00	14.7	4258	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UNDECANE	0.000	200.00	15.7	4258	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BENZENE	0.000	78.11	14.7	4258	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOLUENE	0.000	92.14	14.7	4258	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ETHYLBENZENE	0.000	108.18	14.7	4258	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
XYLENES	0.000	108.18	14.7	4258	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-HEXANE	0.000	86.10	14.7	4258	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,2,4-TRIMETHYLPENTA	0.000	114.24	14.7	4258	10.73	530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

BREATHINGWORKING

POLLUTANT	WT%	EMISSIONS											
		Normal Operating Scenario						Alternate Operating Scenario					
		UNCONTROLLED		1% Condensate Cut		Controlled - VRU		Downtime - VRU		FLARE		Total	
		LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR	LB/HR	TN/YR
TOTAL	100.000	0.43	1.43	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	84.758	0.38	1.21	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HYDROGEN SULFIDE	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL HAP	1.052	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BENZENE	0.067	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

\* EPA TANKS 4.0 - JULY EMISSIONS

TOTAL = FLASHING + BREATHINGWORKING

POLLUTANT	TOTAL EMISSIONS	
	LB/HR	TN/YR
VOC	0.01	0.01
HYDROGEN SULFIDE	0.00	0.00
TOTAL HAP	0.00	0.00
BENZENE	0.00	0.00

POLLUTANT	FLOW RATE SCF/DAY	HEAT VALUE BTU/SCF	EMISSION FACTOR LB/MMBTU	TOTAL EMISSIONS	
				LB/HR	TN/YR
NOX	43	2281	0.1380	0.00	0.00
CO	43	2281	0.2755	0.00	0.00

POLLUTANT	H2S MOL%	FLOW RATE		EMISSIONS	
		SCF/DAY	SCF/HR	LB/HR	TN/YR
SO2	0.02	43	2	0.00	0.00

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification: AURORA - HEARD CDP - WTK  
City: Texas  
State: Texas  
Company: Aurora USA Development, LLC  
Type of Tank: Vertical Fixed Roof Tank  
Description: 400-BBL WATER TANK FIN: WTK-1, WTK-2, WTK-3, WTK-4

**Tank Dimensions**

Shell Height (ft): 20.00  
Diameter (ft): 12.00  
Liquid Height (ft): 16.00  
Avg. Liquid Height (ft): 10.00  
Volume (gallons): 13,536.47  
Turnovers: 70.78  
Net Throughput(gal/yr): 958,125.00  
Is Tank Heated (y/n): N

**Paint Characteristics**

Shell Color/Shade: Gray/Light  
Shell Condition: Good  
Roof Color/Shade: Gray/Light  
Roof Condition: Good

**Roof Characteristics**

Type: Dome  
Height (ft): 0.00  
Radius (ft) (Dome Roof): 0.00

**Breather Vent Settings**

Vacuum Settings (psig): -0.03  
Pressure Settings (psig): 0.03

Meteorological Data used in Emissions Calculations: San Antonio, Texas (Avg Atmospheric Pressure = 14.33 psia)

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Liquid Contents of Storage Tank**

**AURORA - HEARD CDP - WTK - Vertical Fixed Roof Tank**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Crude oil (RVP 5)	Jan	65.56	57.75	73.37	70.86	3.2059	2.7526	3.7171	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Feb	68.47	59.43	77.52	70.86	3.3897	2.8455	4.0143	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Mar	73.29	63.24	83.33	70.86	3.7116	3.0657	4.4620	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Apr	77.82	67.10	88.15	70.86	4.0221	3.3021	4.8622	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	May	80.99	70.29	91.68	70.86	4.2769	3.5087	5.1733	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Jun	84.89	73.42	96.36	70.86	4.5886	3.7210	5.6097	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Jul	86.35	74.54	98.17	70.86	4.7097	3.7990	5.7858	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Aug	85.73	74.28	97.18	70.86	4.6576	3.7811	5.6883	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Sep	81.87	71.77	91.98	70.86	4.3461	3.6074	5.2005	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Oct	76.65	67.16	86.14	70.86	3.9507	3.3059	4.6921	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Nov	70.85	62.60	79.10	70.86	3.5459	3.0279	4.1325	50.0000			207.00	Option 4: RVP=5
Crude oil (RVP 5)	Dec	66.49	58.96	73.99	70.86	3.2636	2.8206	3.7608	50.0000			207.00	Option 4: RVP=5

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)**

**AURORA - HEARD CDP - WTK - Vertical Fixed Roof Tank**

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	53.5270	59.1445	79.2133	86.7336	96.7167	107.9910	118.2154	113.0894	89.7407	79.1997	59.9705	52.1717
Vapor Space Volume (cu ft):	1,224.0621	1,224.0621	1,224.0621	1,224.0621	1,224.0621	1,224.0621	1,224.0621	1,224.0621	1,224.0621	1,224.0621	1,224.0621	1,224.0621

## TANKS 4.0 Report

Vapor Density (lb/cu ft):	0.0284	0.0299	0.0324	0.0349	0.0369	0.0393	0.0402	0.0398	0.0374	0.0343	0.0311	0.0289
Vapor Space Expansion Factor:	0.1408	0.1699	0.2013	0.2239	0.2388	0.2721	0.2869	0.2750	0.2283	0.1986	0.1591	0.1368
Vented Vapor Saturation Factor:	0.3522	0.3396	0.3196	0.3024	0.2896	0.2753	0.2702	0.2724	0.2863	0.3062	0.3298	0.3482
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):	1,224.0621	1,224.0621	1,224.0621	1,224.0621	1,224.0621	1,224.0621	1,224.0621	1,224.0621	1,224.0621	1,224.0621	1,224.0621	1,224.0621
Tank Diameter (ft):	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000
Vapor Space Outage (ft):	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231
Tank Shell Height (ft):	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000
Average Liquid Height (ft):	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000
Roof Outage (ft):	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231
Roof Outage (Dome Roof)												
Roof Outage (ft):	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231	0.8231
Dome Radius (ft):	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000
Shell Radius (ft):	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000
Vapor Density												
Vapor Density (lb/cu ft):	0.0284	0.0299	0.0324	0.0349	0.0369	0.0393	0.0402	0.0398	0.0374	0.0343	0.0311	0.0289
Vapor Molecular Weight (lb/lb-mole):	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.2059	3.3897	3.7116	4.0221	4.2789	4.5886	4.7097	4.6578	4.3461	3.9507	3.5459	3.2636
Daily Avg. Liquid Surface Temp. (deg. R):	525.2257	528.1426	532.9572	537.2943	540.6581	544.5830	548.0237	545.3991	541.5447	536.3206	530.5218	526.1558
Daily Average Ambient Temp. (deg. F):	49.3500	53.5000	61.6000	69.3500	75.5000	82.2000	85.0000	84.9000	79.2500	70.2500	60.3500	52.1500
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg. R):	530.5267	530.5267	530.5267	530.5267	530.5267	530.5267	530.5267	530.5267	530.5267	530.5267	530.5267	530.5267
Tank Paint Solar Absorptance (Shell):	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400
Daily Total Solar Insolation Factor (Btu/sq ft day):	975.8053	1,231.3249	1,524.4824	1,741.8123	1,896.0055	2,120.3154	2,173.9340	2,037.8252	1,717.0652	1,420.7351	1,082.5252	904.8540
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:	0.1408	0.1699	0.2013	0.2239	0.2388	0.2721	0.2869	0.2750	0.2283	0.1986	0.1591	0.1368
Daily Vapor Temperature Range (deg. R):	31.2392	36.1856	40.1862	42.1042	42.7796	45.8832	47.2699	45.7879	40.4340	37.9895	32.9998	30.0254
Daily Vapor Pressure Range (psia):	0.9644	1.1688	1.3983	1.5601	1.6848	1.8887	1.9868	1.9072	1.5931	1.3862	1.1048	0.9402
Breather Vent Press. Setting Range (psia):	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.2059	3.3897	3.7116	4.0221	4.2789	4.5886	4.7097	4.6578	4.3461	3.9507	3.5459	3.2636
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.7526	2.8455	3.0857	3.3021	3.5087	3.7210	3.7990	3.7811	3.6074	3.3059	3.0279	2.8208
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	3.7171	4.0143	4.4820	4.8622	5.1733	5.6097	5.7858	5.6883	5.2005	4.8921	4.1325	3.7608
Daily Avg. Liquid Surface Temp. (deg R):	525.2257	528.1426	532.9572	537.2943	540.6581	544.5830	548.0237	545.3991	541.5447	536.3206	530.5218	526.1558
Daily Min. Liquid Surface Temp. (deg R):	517.4159	519.0962	522.9108	526.7683	529.9632	533.0922	534.2063	533.9521	531.4362	526.8262	522.2718	518.6495
Daily Max. Liquid Surface Temp. (deg R):	533.0355	537.1890	543.0037	547.8204	551.3530	559.0338	557.8412	556.8461	551.8532	545.8130	538.7717	533.6822
Daily Ambient Temp. Range (deg. R):	22.9000	24.4000	23.8000	21.9000	19.6000	19.2000	20.0000	20.8000	20.1000	22.9000	23.1000	22.7000
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:	0.3522	0.3396	0.3196	0.3024	0.2896	0.2753	0.2702	0.2724	0.2863	0.3062	0.3298	0.3482
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.2059	3.3897	3.7116	4.0221	4.2789	4.5886	4.7097	4.6578	4.3461	3.9507	3.5459	3.2636
Vapor Space Outage (ft):	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231	10.8231
Working Losses (lb):												
Vapor Molecular Weight (lb/lb-mole):	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.2059	3.3897	3.7116	4.0221	4.2789	4.5886	4.7097	4.6578	4.3461	3.9507	3.5459	3.2636
Net Throughput (gal/mo.):	79,843.7500	79,843.7500	79,843.7500	79,843.7500	79,843.7500	79,843.7500	79,843.7500	79,843.7500	79,843.7500	79,843.7500	79,843.7500	79,843.7500
Annual Turnovers:	70.7810	70.7810	70.7810	70.7810	70.7810	70.7810	70.7810	70.7810	70.7810	70.7810	70.7810	70.7810
Turnover Factor:	0.5905	0.5905	0.5905	0.5905	0.5905	0.5905	0.5905	0.5905	0.5905	0.5905	0.5905	0.5905
Maximum Liquid Volume (gal):	13,536.4740	13,536.4740	13,536.4740	13,536.4740	13,536.4740	13,536.4740	13,536.4740	13,536.4740	13,536.4740	13,536.4740	13,536.4740	13,536.4740
Maximum Liquid Height (ft):	18.0000	18.0000	18.0000	18.0000	18.0000	18.0000	18.0000	18.0000	18.0000	18.0000	18.0000	18.0000
Tank Diameter (ft):	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000
Working Loss Product Factor:	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500
Total Losses (lb):	188.4837	201.8419	235.4620	256.0522	276.7604	301.1561	316.4798	309.1602	272.6995	245.5108	209.2418	189.5593

### TANKS 4.0.9d

#### Emissions Report - Detail Format

#### Individual Tank Emission Totals

**Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December**

**AURORA - HEARD CDP - WTK - Vertical Fixed Roof Tank**

Components	Losses(lbs)		
	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	2,006.69	995.71	3,002.41

**OWNER/OPERATOR:****FACILITY:****LOCATION:****EMISSION SOURCE:****FIN:****EPN:**

AURORA USA DEVELOPMENT, LLC

JP HEARD BOWER CDP 1

ATASCOSA, TEXAS

CONDENSATE LOADOUT

L1, CLD-2

L1, CLD-2

**DATA****EMISSION FACTORS - VOC:****THROUGHPUT (BBL/DAY):****LOADING RATE (BBL/HR):****VAPOR MOL WT. M (LB/LB-MOL):****SATURATION FACTOR, S:****ANNUAL TRUE VAPOR PRESSURE, P (PSIA):****SHORT-TERM TRUE VAPOR PRESSURE, P (PSIA):****ANNUAL LIQUID BULK TEMPERATURE, T (°R):****SHORT-TERM LIQUID BULK TEMPERATURE, T (°R):****STREAM SPECIATION:**

EPA AP-42, 06/08 - TABLE 5.2-1, SATURATION (S) FACTORS FOR CALCULATING PETROLEUM LIQUID LOADING LOSSES

60

200

45.16

E&amp;P TANK - JP HEARD BOWER 5H - LIQUID - W&amp;S STREAM

0.60

4.79

ANNUAL - CONVERT RVP 6.17 TO TVP USING EPA AP-42, FIGURE 7.1-13A

6.17

SHORT-TERM - CONVERT RVP 6.17 TO TVP USING EPA AP-42, FIGURE 7.1-13A

532

ANNUAL - TAKEN FROM EPA AP-42, TABLE 7.1-7; LOCATION: CORPUS CHRISTI, TX

554

SHORT-TERM - TAKEN FROM EPA AP-42, TABLE 7.1-7; LOCATION: CORPUS CHRISTI, TX

E&amp;P TANK - JP HEARD BOWER 5H - LIQUID - W&amp;S STREAM

**CALCULATION METHOD**

VOC: LOADING LOSS (L) = LB/GAL LOADED = 12.46 SPM/T

**EMISSIONS**

THROUGHPUT			SATURATION FACTOR (S)	TRUE VAPOR PRESSURE (P)		MOL WT VAPORS (M)	TEMPERATURE (T)		LOADING LOSS (L)	
BBL/HR	BBL/DAY	BBL/YR		SHORT	ANNUAL		SHORT	ANNUAL	SHORT	ANNUAL
200	60	21900	0.6	6.17	4.79	45.16	554	532	3.76	3.04

POLLUTANT	WT%	EMISSIONS	
		LB/HR	TN/YR
TOTAL	100.000	31.58	1.40
THC	99.452	31.41	1.39
VOC	84.756	26.77	1.18
TOTAL HAP	1.052	0.33	0.01
HYDROGEN SULFIDE	0.015	0.00	0.00
CARBON DIOXIDE	0.529	0.00	0.01
NITROGEN	0.004	0.00	0.00
METHANE	1.255	0.40	0.02
ETHANE	13.440	4.25	0.19
PROPANE	49.175	15.53	0.69
BUTANE	23.389	7.39	0.33
PENTANE	8.513	2.69	0.12
HEXANE	1.126	0.36	0.02
HEPTANE	1.008	0.32	0.01
OCTANE	0.376	0.12	0.01
NONANE	0.117	0.04	0.00
DECANE	0.000	0.00	0.00
UNDECANE	0.000	0.00	0.00
BENZENE	0.097	0.03	0.00
TOLUENE	0.104	0.03	0.00
ETHYLBENZENE	0.010	0.00	0.00
XYLENES	0.045	0.01	0.00
N-HEXANE	0.795	0.25	0.01
2,2,4 TRIMETHYLPENTANE	0.000	0.00	0.00

**OWNER/OPERATOR:**  
**FACILITY:**  
**LOCATION:**  
**EMISSION SOURCE:**  
**FIN:**  
**EPN:**

**AURORA USA DEVELOPMENT, LLC**  
**JP HEARD BOWER CDP 1**  
**ATASCOSA, TEXAS**  
**WATER LOADOUT**  
**WLD-1, WLD-2**  
**WLD-1, WLD-2**

#### DATA

**EMISSION FACTORS - VOC:** EPA AP-42, 06/08 - TABLE 5.2-1, SATURATION (S) FACTORS FOR CALCULATING PETROLEUM LIQUID LOADING LOSSES  
**THROUGHPUT (BBL/DAY):** 125  
**LOADING RATE (BBL/HR):** 200  
**VAPOR MOL WT. M (LB/LB-MOL):** 45.16 E&P TANK - JP HEARD BOWER 5H - LIQUID - W&S STREAM  
**SATURATION FACTOR, S:** 0.60  
**ANNUAL TRUE VAPOR PRESSURE, P (PSIA):** 4.79 ANNUAL - CONVERT RVP 6.17 TO TVP USING EPA AP-42, EQUATION 1-24  
**SHORT-TERM TRUE VAPOR PRESSURE, P (PSIA):** 6.17 SHORT-TERM - CONVERT RVP 6.17 TO TVP USING EPA AP-42, EQUATION 1-24  
**ANNUAL LIQUID BULK TEMPERATURE, T (°R):** 532 ANNUAL - TAKEN FROM EPA AP-42, TABLE 7.1-7; LOCATION: CORPUS CHRISTI, TX  
**SHORT-TERM LIQUID BULK TEMPERATURE, T (°R):** 554 SHORT-TERM - TAKEN FROM EPA AP-42, TABLE 7.1-7; LOCATION: CORPUS CHRISTI, TX  
**STREAM SPECIATION:** E&P TANK - JP HEARD BOWER 5H - LIQUID - W&S STREAM  
**CONDENSATE CUT (%):** <1 ASSUME WATER VOLUME CONTAINS LESS THAN 1% CONDENSATE

#### CALCULATION METHOD

VOC: LOADING LOSS (L) = LB/GAL LOADED = 12.46 SPM/T

#### EMISSIONS

THROUGHPUT			SATURATION FACTOR (S)	TRUE VAPOR PRESSURE (P)		MOL WT VAPORS (M)	TEMPERATURE (T)		LOADING LOSS (L)	
BBL/HR	BBL/DAY	BBL/YR		SHORT	ANNUAL		SHORT	ANNUAL	SHORT	ANNUAL
200	125	45625	0.6	6.17	4.79	45.16	554	532	3.76	3.04

POLLUTANT	WT%	EMISSIONS			
		NO CONDENSATE CUT		1% CONDENSATE CUT	
		LB/HR	TN/YR	LB/HR	TN/YR
TOTAL	100.000	31.58	2.91	0.32	0.03
THC	99.452	31.41	2.90	0.31	0.03
VOC	84.756	26.77	2.47	0.27	0.02
TOTAL HAP	1.052	0.33	0.03	0.00	0.00
HYDROGEN SULFIDE	0.015	0.00	0.00	0.00	0.00
CARBON DIOXIDE	0.529	0.17	0.02	0.00	0.00
NITROGEN	0.004	0.00	0.00	0.00	0.00
METHANE	1.255	0.40	0.04	0.00	0.00
ETHANE	13.440	4.25	0.39	0.04	0.00
PROPANE	49.175	15.53	1.43	0.16	0.01
BUTANE	23.389	7.39	0.68	0.07	0.01
PENTANE	8.513	2.69	0.25	0.03	0.00
HEXANE	1.126	0.36	0.03	0.00	0.00
HEPTANE	1.008	0.32	0.03	0.00	0.00
OCTANE	0.376	0.12	0.01	0.00	0.00
NONANE	0.117	0.04	0.00	0.00	0.00
DECANE	0.000	0.00	0.00	0.00	0.00
UNDECANE	0.000	0.00	0.00	0.00	0.00
BENZENE	0.097	0.03	0.00	0.00	0.00
TOLUENE	0.104	0.03	0.00	0.00	0.00
ETHYLBENZENE	0.010	0.00	0.00	0.00	0.00
XYLENES	0.045	0.01	0.00	0.00	0.00
N-HEXANE	0.795	0.25	0.02	0.00	0.00
2, 2, 4 TRIMETHYLPENTANE	0.000	0.00	0.00	0.00	0.00

**OWNER/OPERATOR:** AURORA USA DEVELOPMENT, LLC  
**FACILITY:** JP HEARD BOWER CDP 1  
**LOCATION:** ATASCOSA, TEXAS  
**EMISSION SOURCE:** FUGITIVES  
**FIN:** FUG  
**EPN:** FUG

#### DATA

**EMISSION FACTORS:** TCEQ FUGITIVE GUIDANCE FOR OIL/GAS PRODUCTION OPERATIONS  
**COMPONENT COUNT:** COMPONENT COUNT IS ESTIMATED BASED ON SIMILAR OPERATION (NOT ACTUAL COUNT)  
**GAS STREAM SPECIATION:** JP HEARD A-5H - HP SEPARATOR - SAMPLED 04/12/2013  
**LIQUID STREAM SPECIATION:** E&P TANK - JP HEARD BOWER 5H - LIQUID - W&S STREAM

#### CALCULATION METHOD

(LB/HR/COMPONENT) (NUMBER OF COMPONENTS) (HR/YR) (1 TN/2000 LB) = TN/YR

#### EMISSIONS

##### GAS SERVICE:

COMPONENT	COUNT	EMISSION FACTOR LB/HR/COMPONENT	EMISSIONS	
			LB/HR	TN/YR
VALVE	47	0.00992	0.47	2.04
FLANGE	473	0.00086	0.41	1.78
PUMP	0	0.00529	0.00	0.00
COMPRESSOR SEAL	10	0.01940	0.19	0.85
RELIEF VALVE	40	0.01940	0.78	3.40
OPEN-ENDED LINE	0	0.00441	0.00	0.00
SAMPLING CONNECTOR	0	0.00044	0.00	0.00
OTHER	0	0.01940	0.00	0.00
TOTAL GAS STREAM			1.84	8.07

##### LIQUID SERVICE:

COMPONENT	COUNT	EMISSION FACTOR LB/HR/COMPONENT	EMISSIONS	
			LB/HR	TN/YR
VALVE	59	0.00550	0.32	1.42
FLANGE	194	0.00024	0.05	0.21
PUMP	4	0.02866	0.11	0.50
COMPRESSOR SEAL	0	0.01650	0.00	0.00
RELIEF VALVE	20	0.01650	0.33	1.45
OPEN-ENDED LINE	16	0.00309	0.05	0.22
SAMPLING CONNECTOR	0	0.00046	0.00	0.00
OTHER	0	0.01650	0.00	0.00
TOTAL LIQUID STREAM			0.87	3.79

POLLUTANT	GAS SERVICE			LIQUID SERVICE			TOTAL EMISSIONS	
	WT%	EMISSIONS		WT%	EMISSIONS		LB/HR	TN/YR
		LB/HR	TN/YR		LB/HR	TN/YR		
TOTAL	100.000	1.84	8.07	100.000	0.87	3.79	2.71	11.86
THC	95.429	1.76	7.70	99.452	0.86	3.77	2.62	11.47
VOC	27.086	0.50	2.19	84.756	0.73	3.21	1.23	5.40
HAP	0.480	0.01	0.04	1.052	0.01	0.04	0.02	0.08
HYDROGEN SULFIDE	0.029	0.00	0.00	0.015	0.00	0.00	0.00	0.00
CARBON DIOXIDE	4.173	0.08	0.34	0.529	0.00	0.02	0.08	0.36
NITROGEN	0.369	0.01	0.03	0.004	0.00	0.00	0.01	0.03
METHANE	48.901	0.90	3.95	1.255	0.01	0.05	0.91	4.00
ETHANE	19.442	0.36	1.57	13.440	0.12	0.51	0.47	2.08
PROPANE	13.818	0.25	1.12	49.175	0.43	1.86	0.68	2.98
BUTANE	6.975	0.13	0.56	23.389	0.20	0.89	0.33	1.45
PENTANE	2.930	0.05	0.24	8.513	0.07	0.32	0.13	0.56
HEXANE	2.042	0.04	0.16	1.126	0.01	0.04	0.05	0.21
HEPTANE	0.550	0.01	0.04	1.008	0.01	0.04	0.02	0.08
OCTANES+	0.291	0.01	0.02	0.376	0.00	0.01	0.01	0.04
BENZENE	0.139	0.00	0.01	0.117	0.00	0.00	0.00	0.02
TOLUENE	0.113	0.00	0.01	0.000	0.00	0.00	0.00	0.01
ETHYLBENZENE	0.112	0.00	0.01	0.000	0.00	0.00	0.00	0.01
XYLENES	0.006	0.00	0.00	0.097	0.00	0.00	0.00	0.00
N-HEXANE	0.023	0.00	0.00	0.104	0.00	0.00	0.00	0.01
2,2,4-TRIMETHYLPENTANE	0.087							

**OWNER/OPERATOR:** AURORA USA DEVELOPMENT, LLC  
**FACILITY:** JP HEARD BOWER CDP 1  
**LOCATION:** ATASCOSA, TEXAS

# **GAS ANALYSIS**

JP HEARD A-5H - HP SEPARATOR - SAMPLED 04/12/2013

COMPOUND	MOL %	MOL WT		CALC MOL WT	WT%
TOTAL	100.000	NA		NA	100.000
THC	97.477	NA		NA	95.429
VOC	11.843	NA		NA	27.086
TOTAL HAP	0.125	NA		NA	0.480
HYDROGEN SULFIDE	0.020	34.00		0.01	0.029
CARBON DIOXIDE	2.198	44.00		0.97	4.173
NITROGEN	0.305	28.00		0.09	0.369
METHANE	70.651	16.04		11.33	48.901
ETHANE	14.983	30.07		4.51	19.442
PROPANE	7.261	44.10		3.20	13.818
BUTANE	2.781	58.12		1.62	6.975
PENTANE	0.941	72.15		0.68	2.930
HEXANES + **	0.860				

\*\* HEXANES + SPECIATED USING GRI-GLYCALC FACTORS FOR PRODUCTION SECTOR

COMPOUND	FACTOR	C6+ MOL %	ADJUSTED MOL%	MOL WT	CALC MOL WT	WT%
OTHER HEXANES	0.6385	0.860	0.549	86.18	0.47	2.042
HEPTANE	0.1479	0.860	0.127	100.2	0.13	0.550
OCTANES+	0.0687	0.860	0.059	114.23	0.07	0.291
2,2,4-TRIMETHYLPENTANE	0.0267	0.860	0.023	88.1	0.02	0.087
BENZENE	0.0480	0.860	0.041	78.11	0.03	0.139
TOLUENE	0.0331	0.860	0.028	92.14	0.03	0.113
ETHYLBENZENE	0.0285	0.860	0.025	106.16	0.03	0.112
XYLENES	0.0014	0.860	0.001	106.16	0.00	0.006
N-HEXANE	0.0072	0.860	0.006	86.18	0.01	0.023
TOTAL					23.17	100.000

# **FLASH GAS ANALYSIS**

JP HEARD BOWER NO. 5H - GAS EVOLVED FROM HYDROCARBON LIQUID FLASHED - SAMPLED 01/24/2012

COMPONENT	MOL%	MOL WT	CALC MOL WT	WT%
TOTAL	100.000			100.00
THC	98.674			98.60
VOC	51.286			70.63
TOTAL HAP	0.000			0.00
HYDROGEN SULFIDE	0.020	34.00	0.01	0.02
CARBON DIOXIDE	1.142	44.00	0.50	1.26
NITROGEN	0.164	28.00	0.05	0.12
METHANE	22.320	16.04	3.58	9.01
ETHANE	25.068	30.07	7.54	18.97
PROPANE	26.891	44.10	11.86	29.84
BUTANE	15.183	58.12	8.82	22.21
PENTANE	5.531	72.15	3.99	10.04
HEXANE	2.109	86.17	1.82	4.57
HEPTANE	1.572	100.20	1.58	3.96
OCTANE	0.000	114.23	0.00	0.00
NONANE	0.000	128.26	0.00	0.00
DECANE	0.000	142.00	0.00	0.00
UNDECANE	0.000	200.00	0.00	0.00
BENZENE	0.000	78.11	0.00	0.00
TOLUENE	0.000	92.14	0.00	0.00
ETHYLBENZENE	0.000	106.16	0.00	0.00
XYLENES	0.000	106.16	0.00	0.00
N-HEXANE	0.000	86.10	0.00	0.00
2,2,4 TRIMETHYLPENTANE	0.000	114.24	0.00	0.00
TOTAL			39.74	100.00

**OWNER/OPERATOR:** AURORA USA DEVELOPMENT, LLC  
**FACILITY:** JP HEARD BOWER CDP 1  
**LOCATION:** ATASCOSA, TEXAS

# LIQUID ANALYSIS

JP HEARD BOWER 5H - LIQUID - SAMPLED 06/18/2013

COMPONENT	MOL%	MOL WT	CALC MOL WT	WT%
TOTAL	100.000			100.00
THC	99.824			99.93
VOC	93.514			98.57
TOTAL HAP	5.914			5.03
HYDROGEN SULFIDE	0.020	34.00	0.01	0.01
CARBON DIOXIDE	0.138	44.00	0.06	0.06
NITROGEN	0.018	28.00	0.01	0.00
METHANE	2.854	16.04	0.46	0.42
ETHANE	3.456	30.07	1.04	0.95
PROPANE	5.575	44.10	2.46	2.25
BUTANE	6.416	58.12	3.73	3.41
PENTANE	6.245	72.15	4.51	4.11
HEXANE	2.732	86.17	2.35	2.15
HEPTANE	6.384	100.20	6.40	5.84
OCTANE	6.734	114.23	7.69	7.03
NONANE	5.162	128.26	6.62	6.05
DECANE	48.352	142.00	68.66	62.70
UNDECANE	0.000	200.00	0.00	0.00
BENZENE	0.363	78.11	0.28	0.26
TOLUENE	1.192	92.14	1.10	1.00
ETHYLBENZENE	0.292	106.16	0.31	0.28
XYLENES	1.585	106.16	1.68	1.54
N-HEXANE	2.482	86.10	2.14	1.95
2,2,4 TRIMETHYLPENTANE	0.000	114.24	0.00	0.00
TOTAL			109.50	100.00

# WORKING/STANDING STREAM DATA

E&P TANK - JP HEARD BOWER 5H - LIQUID - W&S STREAM

COMPONENT	MOL%	MOL WT	CALC MOL WT	WT%
TOTAL	100.000			100.00
THC	99.430			99.45
VOC	75.694			84.76
TOTAL HAP	0.548			1.05
HYDROGEN SULFIDE	0.020	34.00	0.01	0.02
CARBON DIOXIDE	0.543	44.00	0.24	0.53
NITROGEN	0.007	28.00	0.00	0.00
METHANE	3.536	16.04	0.57	1.26
ETHANE	20.199	30.07	6.07	13.44
PROPANE	50.392	44.10	22.22	49.17
BUTANE	18.187	58.12	10.57	23.39
PENTANE	5.332	72.15	3.85	8.51
HEXANE	0.591	86.17	0.51	1.13
HEPTANE	0.455	100.20	0.46	1.01
OCTANE	0.149	114.23	0.17	0.38
NONANE	0.041	128.26	0.05	0.12
DECANE	0.000	142.00	0.00	0.00
UNDECANE	0.000	200.00	0.00	0.00
BENZENE	0.056	78.11	0.04	0.10
TOLUENE	0.051	92.14	0.05	0.10
ETHYLBENZENE	0.004	106.16	0.00	0.01
XYLENES	0.019	106.16	0.02	0.04
N-HEXANE	0.418	86.10	0.36	0.80
2,2,4 TRIMETHYLPENTANE	0.000	114.24	0.00	0.00
TOTAL			45.19	100.00

\*\*\*\*\*  
 \* Project Setup Information \*

\*\*\*\*\*  
 Project File : Untitled.Ept  
 Flowsheet Selection : Oil Tank with Separator  
 Calculation Method : RVP Distillation  
 Control Efficiency : 95.0%  
 Known Separator Stream : Low Pressure Oil  
 Entering Air Composition : No  
  
 Filed Name : AURORA USA DEVELOPMENT, LLC  
 Well Name : JP HEARD BOWER WELL NO. 5H PRODUCTION FACILITY  
 Well ID : 300-BBL WATER TANK  
 Date : 2013.09.09

\*\*\*\*\*  
 \* Data Input \*

\*\*\*\*\*  
 Separator Pressure : 135.00[psig]  
 Separator Temperature : 109.00[F]  
 Ambient Pressure : 14.70[psia]  
 Ambient Temperature : 70.00[F]  
 C10+ SG : 0.8447  
 C10+ MW : 257.50

-- Low Pressure Oil -----

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.1580
4	N2	0.0180
5	C1	2.8540
6	C2	3.4560
7	C3	5.5750
8	i-C4	1.4940
9	n-C4	4.9220
10	i-C5	2.6620
11	n-C5	3.5830
12	C6	2.7320
13	C7	6.3840
14	C8	6.7340
15	C9	5.1620
16	C10+	48.3520
17	Benzene	0.3630
18	Toluene	1.1920
19	E-Benzene	0.2920
20	Xylenes	1.5850
21	n-C6	2.4820
22	224Trimethylp	0.0000

-- Sales Oil -----

Production Rate : 5[bbl/day]  
 Days of Annual Operation : 365 [days/year]  
 API Gravity : 43.95  
 Reid Vapor Pressure : 6.17[psia]

\*\*\*\*\*  
 \* Calculation Results \*

-- Emission Summary -----

Item	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]	Controlled [ton/yr]	Controlled [lb/hr]
------	--------------------------	-------------------------	------------------------	-----------------------

Total HAPs	0.100	0.023	0.005	0.001
Total HC	8.714	1.989	0.436	0.099
VOCs, C2+	8.004	1.827	0.400	0.091
VOCs, C3+	6.394	1.460	0.320	0.073

## Uncontrolled Recovery Info.

Vapor	463.4800 x1E-3 [MSCFD]
HC Vapor	457.8100 x1E-3 [MSCFD]
GOR	92.70 [SCF/bbl]

## -- Emission Composition -----

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]	Controlled [ton/yr]	Controlled [lb/hr]
1	H2S	0.000	0.000	0.000	0.000
2	O2	0.000	0.000	0.000	0.000
3	CO2	0.108	0.025	0.108	0.025
4	N2	0.008	0.002	0.008	0.002
5	C1	0.710	0.162	0.036	0.008
6	C2	1.610	0.368	0.081	0.018
7	C3	3.204	0.732	0.160	0.037
8	i-C4	0.584	0.133	0.029	0.007
9	n-C4	1.440	0.329	0.072	0.016
10	i-C5	0.407	0.093	0.020	0.005
11	n-C5	0.412	0.094	0.021	0.005
12	C6	0.106	0.024	0.005	0.001
13	C7	0.094	0.021	0.005	0.001
14	C8	0.035	0.008	0.002	0.000
15	C9	0.010	0.002	0.001	0.000
16	C10+	0.000	0.000	0.000	0.000
17	Benzene	0.009	0.002	0.000	0.000
18	Toluene	0.010	0.002	0.001	0.000
19	E-Benzene	0.001	0.000	0.000	0.000
20	Xylenes	0.004	0.001	0.000	0.000
21	n-C6	0.077	0.018	0.004	0.001
22	224Trimethylp	0.000	0.000	0.000	0.000
	Total	8.829	2.016	0.441	0.101

## -- Stream Data -----

No.	Component	MW	LP Oil mol %	Flash Oil mol %	Sale Oil mol %	Flash Gas mol %	W&S Gas mol %	Total Emissions mol %
1	H2S	34.80	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	O2	32.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	CO2	44.01	0.1580	0.0206	0.0000	1.2539	0.5631	1.0982
4	N2	28.01	0.0180	0.0002	0.0000	0.1596	0.0068	0.1251
5	C1	16.04	2.8540	0.1291	0.0000	24.5843	3.5363	19.8390
6	C2	30.07	3.4560	0.7436	0.0065	25.0866	20.1993	23.9847
7	C3	44.10	5.5750	2.8419	1.0405	27.3707	50.3920	32.5609
8	i-C4	58.12	1.4940	1.1540	0.9882	4.2057	5.5282	4.5039
9	n-C4	58.12	4.9220	4.2040	3.8837	10.6476	12.6584	11.1009
10	i-C5	72.15	2.6620	2.6840	2.6851	2.4863	2.6572	2.5248
11	n-C5	72.15	3.5830	3.7158	3.7552	2.5239	2.6750	2.5580
12	C6	86.16	2.7320	3.0043	3.0957	0.5605	0.5906	0.5673
13	C7	100.20	6.3840	7.1308	7.3837	0.4285	0.4548	0.4344
14	C8	114.23	6.7340	7.5610	7.8418	0.1387	0.1488	0.1410
15	C9	128.28	5.1620	5.8048	6.0232	0.0356	0.0411	0.0369
16	C10+	257.50	48.3520	54.4152	56.4766	0.0000	0.0000	0.0000
17	Benzene	78.11	0.3630	0.4018	0.4149	0.0534	0.0564	0.0541
18	Toluene	92.13	1.1920	1.3355	1.3841	0.0479	0.0512	0.0487
19	E-Benzene	106.17	0.2920	0.3281	0.3404	0.0038	0.0041	0.0038
20	Xylenes	106.17	1.5850	1.7815	1.8483	0.0176	0.0191	0.0180
21	n-C6	86.18	2.4820	2.7436	2.8318	0.3954	0.4175	0.4004
22	224Trimethylp	114.24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	MW		164.84	180.75	185.89	37.94	45.16	39.56
	Stream Mole Ratio		1.0000	0.8886	0.8561	0.1114	0.0324	0.1439
	Heating Value	[BTU/SCF]				2150.00	2557.62	2241.90
	Gas Gravity	[Gas/Air]				1.31	1.56	1.37
	Bubble Pt. @ 100F	[psia]	141.29	21.51	7.78			

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RVP @ 100F	[psia]	34.87	11.56	6.36
Spec. Gravity @ 100F		0.722	0.730	0.732

## **SECTION 5. IMPACTS ANALYSIS**

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NO<sub>2</sub>

**OWNER/OPERATOR:**  
**FACILITY:**  
**LOCATION:**

**AURORA USA DEVELOPMENT, LLC**  
**JP HEARD BOWER CDP 1**  
**ATASCOSA, TEXAS**

**SCREEN 3 MODELING SUMMARY**

**SCREEN 3 INPUT VALUES**

EPN	HP	EMISSION RATE			STACK HEIGHT		STACK DIAMETER		STACK GAS EXIT		
									TEMPERATURE		FLOW RATE
		G/HP-HR	LB/HR	G/S	FT	M	IN	M	F°	K°	
C1	215	2.0	0.95	0.12	12	3.66	4	0.10	1215	930	1043
C2	95	0.7	0.15	0.02	8	2.44	3	0.08	1105	869	459
C3	145	0.6	0.18	0.02	10	3.05	3	0.08	1063	846	634
C4	330	0.7	0.47	0.06	15	4.57	4	0.10	1086	859	1398
ENG-5	92	2.8	0.57	0.07	6	1.83	4	0.10	1200	922	650

**SCREEN 3 OUTPUT VALUES**

EPN	MAXIMUM NO2 1-HR CONCENTRATION					MAXIMUM NO2 ANNUAL CONCENTRATION				
	DISTANCE (M)	NOX	NO2/NOX	NO2	NO2	NOX	NO2/NOX	ANNUAL	NO2	NO2
		UG/M3	RATIO*	UG/M3	PPB	UG/M3	RATIO*	CONVERSION	UG/M3	PPB
C1	100	48.4	0.85	41.10	21.86	48.4	0.85	0.08	3.29	1.75
C2	100	22.2	0.85	18.87	10.04	22.2	0.85	0.08	1.51	0.80
C3	100	14.8	0.85	12.61	6.71	14.8	0.85	0.08	1.01	0.54
C4	100	17.0	0.85	14.44	7.68	17.0	0.85	0.08	1.16	0.61
ENG-5	100	29.5	0.85	25.06	13.33	29.5	0.85	0.08	2.00	1.07
BACKGROUND - ATASCOSA COUNTY**				70	37.24				20	10.64
TOTAL***				182.07	96.86				28.97	15.41
ALLOWED CONCENTRATIONS UNDER 40 CFR PARTS 50 AND 58				100					53	

NO2 1-HR STANDARD - 100 PPB

NO2 ANNUAL STANDARD - 53 PPB

\* NO2/NOX RATIO FOR MODELING NO2 NAAQS PER 30 TAC 106.512 (6) (A)

\*\* TCEQ INTERIM 1-HOUR NO2 SCREENING BACKGROUND CONCENTRATIONS, JULY 22, 2010

\*\* TCEQ SCREENING BACKGROUND CONCENTRATIONS - NO2 (ANNUAL) - AUGUST 1998

04/22/14  
08:34:09

\*\*\* SCREEN3 MODEL RUN \*\*\*  
\*\*\* VERSION DATED 96043 \*\*\*

C:\Lakes\Screen View\Aurora - JP Heard Bower CDP1 - NOX- ENG-1.scr

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT  
EMISSION RATE (G/S) = 0.120000  
STACK HEIGHT (M) = 3.6600  
STK INSIDE DIAM (M) = 0.1000  
STK EXIT VELOCITY (M/S) = 62.6740  
STK GAS EXIT TEMP (K) = 930.0000  
AMBIENT AIR TEMP (K) = 293.0000  
RECEPTOR HEIGHT (M) = 0.0000  
URBAN/RURAL OPTION = RURAL  
BUILDING HEIGHT (M) = 0.0000  
MIN HORIZ BLDG DIM (M) = 0.0000  
MAX HORIZ BLDG DIM (M) = 0.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.  
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM  
VOLUME FLOW RATE = 0.49224073 (M\*\*3/S)

BUOY. FLUX = 1.052 M\*\*4/S\*\*3; MOM. FLUX = 3.094 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\*\*\*  
\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*  
\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	0.000	1	1.0	1.0	320.0	25.92	1.28	1.22	NO
100.	48.35	4	8.0	8.0	2560.0	6.44	8.24	4.72	NO
200.	41.58	4	3.0	3.0	960.0	11.08	15.71	8.76	NO
300.	33.23	4	2.0	2.0	640.0	14.79	22.83	12.50	NO
400.	27.32	4	1.5	1.5	480.0	18.50	29.76	15.85	NO
500.	22.93	4	1.5	1.5	480.0	18.50	36.39	18.78	NO
600.	20.13	4	1.0	1.0	320.0	25.92	43.19	22.14	NO
700.	17.99	4	1.0	1.0	320.0	25.92	49.60	24.86	NO
800.	15.92	4	1.0	1.0	320.0	25.92	55.94	27.53	NO
900.	14.07	4	1.0	1.0	320.0	25.92	62.21	30.14	NO
1000.	13.11	6	1.0	1.0	10000.0	28.75	34.63	15.69	NO
1100.	13.41	6	1.0	1.0	10000.0	28.75	37.65	16.46	NO
1200.	13.54	6	1.0	1.0	10000.0	28.75	40.65	17.22	NO
1300.	13.54	6	1.0	1.0	10000.0	28.75	43.64	17.96	NO
1400.	13.44	6	1.0	1.0	10000.0	28.75	46.60	18.69	NO
1500.	13.26	6	1.0	1.0	10000.0	28.75	49.55	19.40	NO
1600.	13.02	6	1.0	1.0	10000.0	28.75	52.49	20.10	NO
1700.	12.75	6	1.0	1.0	10000.0	28.75	55.41	20.79	NO
1800.	12.45	6	1.0	1.0	10000.0	28.75	58.31	21.47	NO
1900.	12.13	6	1.0	1.0	10000.0	28.75	61.20	22.13	NO
2000.	11.80	6	1.0	1.0	10000.0	28.75	64.08	22.78	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:  
60. 51.14 3 8.0 8.0 2560.0 6.44 7.93 4.80 NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
DWASH=NO MEANS NO BUILDING DOWNWASH USED  
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3\*LB

\*\*\*\*\*  
\*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
\*\*\*\*\*

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	51.14	60.	0.

04/22/14  
08:35:03

\*\*\* SCREEN3 MODEL RUN \*\*\*  
\*\*\* VERSION DATED 96043 \*\*\*

C:\Lakes\Screen View\Aurora - JP Heard Bower CDP1 - NOX - ENG-2.scr

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT  
EMISSION RATE (G/S) = 0.200000E-01  
STACK HEIGHT (M) = 2.4400  
STK INSIDE DIAM (M) = 0.0800  
STK EXIT VELOCITY (M/S) = 43.0959  
STK GAS EXIT TEMP (K) = 869.0000  
AMBIENT AIR TEMP (K) = 293.0000  
RECEPTOR HEIGHT (M) = 0.0000  
URBAN/RURAL OPTION = RURAL  
BUILDING HEIGHT (M) = 0.0000  
MIN HORIZ BLDG DIM (M) = 0.0000  
MAX HORIZ BLDG DIM (M) = 0.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.  
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM  
VOLUME FLOW RATE = 0.21662366 (M\*\*3/S)

BOUY. FLUX = 0.448 M\*\*4/S\*\*3; MOM. FLUX = 1.002 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\*\*\*  
\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*  
\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	0.000	1	1.0	1.0	320.0	14.18	0.92	0.84	NO
100.	22.20	4	3.0	3.0	960.0	6.35	8.28	4.78	NO
200.	15.53	4	1.5	1.5	480.0	10.26	15.72	8.79	NO
300.	11.73	4	1.0	1.0	320.0	14.18	22.86	12.55	NO
400.	9.106	4	1.0	1.0	320.0	14.18	29.64	15.63	NO
500.	7.052	4	1.0	1.0	320.0	14.18	36.30	18.60	NO
600.	5.564	4	1.0	1.0	320.0	14.18	42.85	21.47	NO
700.	4.519	6	1.0	1.0	10000.0	21.32	25.04	12.19	NO
800.	4.613	6	1.0	1.0	10000.0	21.32	28.16	13.13	NO
900.	4.591	6	1.0	1.0	10000.0	21.32	31.24	14.06	NO
1000.	4.494	6	1.0	1.0	10000.0	21.32	34.31	14.96	NO
1100.	4.335	6	1.0	1.0	10000.0	21.32	37.35	15.77	NO
1200.	4.159	6	1.0	1.0	10000.0	21.32	40.38	16.56	NO
1300.	3.975	6	1.0	1.0	10000.0	21.32	43.38	17.33	NO
1400.	3.791	6	1.0	1.0	10000.0	21.32	46.36	18.08	NO
1500.	3.611	6	1.0	1.0	10000.0	21.32	49.33	18.82	NO
1600.	3.438	6	1.0	1.0	10000.0	21.32	52.27	19.54	NO
1700.	3.273	6	1.0	1.0	10000.0	21.32	55.20	20.25	NO
1800.	3.116	6	1.0	1.0	10000.0	21.32	58.12	20.94	NO
1900.	2.968	6	1.0	1.0	10000.0	21.32	61.02	21.62	NO
2000.	2.829	6	1.0	1.0	10000.0	21.32	63.90	22.29	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:  
41. 24.98 3 5.0 5.0 1600.0 4.79 5.62 3.43 NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
DWASH=NO MEANS NO BUILDING DOWNWASH USED  
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3\*LB

\*\*\*\*\*  
\*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
\*\*\*\*\*

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	24.98	41.	0.

04/22/14  
08:37:36

\*\*\* SCREEN3 MODEL RUN \*\*\*  
\*\*\* VERSION DATED 96043 \*\*\*

C:\Lakes\Screen View\Aurora - JP Heard Bower CDP1 - NOX - ENG-3.scr

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT  
EMISSION RATE (G/S) = 0.200000E-01  
STACK HEIGHT (M) = 3.0500  
STK INSIDE DIAM (M) = 0.0800  
STK EXIT VELOCITY (M/S) = 59.5268  
STK GAS EXIT TEMP (K) = 846.0000  
AMBIENT AIR TEMP (K) = 293.0000  
RECEPTOR HEIGHT (M) = 0.0000  
URBAN/RURAL OPTION = RURAL  
BUILDING HEIGHT (M) = 0.0000  
MIN HORIZ BLDG DIM (M) = 0.0000  
MAX HORIZ BLDG DIM (M) = 0.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.  
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM  
VOLUME FLOW RATE = 0.29921439 (M\*\*3/S)

BOUY. FLUX = 0.611 M\*\*4/S\*\*3; MOM. FLUX = 1.964 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\*\*\*  
\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*  
\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	0.000	1	1.0	1.0	320.0	17.85	1.12	1.05	NO
100.	14.83	4	4.0	4.0	1280.0	6.75	8.27	4.77	NO
200.	11.36	4	2.0	2.0	640.0	10.45	15.71	8.76	NO
300.	8.734	4	1.5	1.5	480.0	12.91	22.79	12.42	NO
400.	7.160	4	1.0	1.0	320.0	17.85	29.76	15.84	NO
500.	5.930	4	1.0	1.0	320.0	17.85	36.39	18.78	NO
600.	4.878	4	1.0	1.0	320.0	17.85	42.93	21.63	NO
700.	4.044	4	1.0	1.0	320.0	17.85	49.37	24.40	NO
800.	3.392	4	1.0	1.0	320.0	17.85	55.73	27.11	NO
900.	3.480	6	1.0	1.0	10000.0	23.97	31.35	14.29	NO
1000.	3.502	6	1.0	1.0	10000.0	23.97	34.41	15.18	NO
1100.	3.453	6	1.0	1.0	10000.0	23.97	37.44	15.98	NO
1200.	3.375	6	1.0	1.0	10000.0	23.97	40.46	16.76	NO
1300.	3.279	6	1.0	1.0	10000.0	23.97	43.46	17.52	NO
1400.	3.172	6	1.0	1.0	10000.0	23.97	46.43	18.27	NO
1500.	3.060	6	1.0	1.0	10000.0	23.97	49.39	19.00	NO
1600.	2.945	6	1.0	1.0	10000.0	23.97	52.34	19.71	NO
1700.	2.831	6	1.0	1.0	10000.0	23.97	55.26	20.41	NO
1800.	2.720	6	1.0	1.0	10000.0	23.97	58.18	21.10	NO
1900.	2.611	6	1.0	1.0	10000.0	23.97	61.07	21.77	NO
2000.	2.507	6	1.0	1.0	10000.0	23.97	63.96	22.44	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:  
52. 15.80 3 5.0 5.0 1600.0 6.01 6.98 4.25 NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
DWASH=NO MEANS NO BUILDING DOWNWASH USED  
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3\*LB

\*\*\*\*\*  
\*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
\*\*\*\*\*

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	15.80	52.	0.

04/22/14  
08:39:25

\*\*\* SCREEN3 MODEL RUN \*\*\*  
\*\*\* VERSION DATED 96043 \*\*\*

C:\Lakes\Screen View\Aurora - JP Heard Bower CDP1 - NOX - ENG-4.scr

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT  
EMISSION RATE (G/S) = 0.600000E-01  
STACK HEIGHT (M) = 4.5700  
STK INSIDE DIAM (M) = 0.1000  
STK EXIT VELOCITY (M/S) = 84.0060  
STK GAS EXIT TEMP (K) = 859.0000  
AMBIENT AIR TEMP (K) = 293.0000  
RECEPTOR HEIGHT (M) = 0.0000  
URBAN/RURAL OPTION = RURAL  
BUILDING HEIGHT (M) = 0.0000  
MIN HORIZ BLDG DIM (M) = 0.0000  
MAX HORIZ BLDG DIM (M) = 0.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.  
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM  
VOLUME FLOW RATE = 0.65978187 (M\*\*3/S)

BUOY. FLUX = 1.357 M\*\*4/S\*\*3; MOM. FLUX = 6.018 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\*\*\*  
\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*  
\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	0.000	1	1.0	1.0	320.0	31.51	1.58	1.53	NO
100.	16.99	3	4.5	4.5	1440.0	10.56	12.58	7.64	NO
200.	15.06	4	4.0	4.0	1280.0	11.30	15.68	8.71	NO
300.	12.60	4	2.5	2.5	800.0	15.34	22.82	12.48	NO
400.	10.59	4	2.0	2.0	640.0	18.04	29.70	15.75	NO
500.	9.089	4	1.5	1.5	480.0	22.53	36.51	19.00	NO
600.	7.959	4	1.5	1.5	480.0	22.53	43.02	21.82	NO
700.	6.973	4	1.0	1.0	320.0	31.51	49.79	25.24	NO
800.	6.447	4	1.0	1.0	320.0	31.51	56.10	27.87	NO
900.	5.889	4	1.0	1.0	320.0	31.51	62.36	30.45	NO
1000.	5.351	4	1.0	1.0	320.0	31.51	68.56	33.00	NO
1100.	4.934	6	1.0	1.0	10000.0	31.88	37.78	16.75	NO
1200.	5.091	6	1.0	1.0	10000.0	31.88	40.77	17.49	NO
1300.	5.190	6	1.0	1.0	10000.0	31.88	43.74	18.22	NO
1400.	5.239	6	1.0	1.0	10000.0	31.88	46.70	18.94	NO
1500.	5.250	6	1.0	1.0	10000.0	31.88	49.65	19.65	NO
1600.	5.229	6	1.0	1.0	10000.0	31.88	52.58	20.34	NO
1700.	5.184	6	1.0	1.0	10000.0	31.88	55.49	21.02	NO
1800.	5.120	6	1.0	1.0	10000.0	31.88	58.39	21.69	NO
1900.	5.042	6	1.0	1.0	10000.0	31.88	61.28	22.34	NO
2000.	4.952	6	1.0	1.0	10000.0	31.88	64.15	22.99	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:  
91. 17.21 3 5.0 5.0 1600.0 9.96 11.64 7.07 NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
DWASH=NO MEANS NO BUILDING DOWNWASH USED  
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3\*LB

\*\*\*\*\*  
\*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
\*\*\*\*\*

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	17.21	91.	0.

04/22/14  
08:53:50

\*\*\* SCREEN3 MODEL RUN \*\*\*  
\*\*\* VERSION DATED 96043 \*\*\*

C:\Lakes\Screen View\Aurora - JP Heard Bower CDP1 - NOX - ENG-5.scr

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT  
EMISSION RATE (G/S) = 0.300000E-01  
STACK HEIGHT (M) = 1.8300  
STK INSIDE DIAM (M) = 0.1000  
STK EXIT VELOCITY (M/S) = 39.0586  
STK GAS EXIT TEMP (K) = 922.0000  
AMBIENT AIR TEMP (K) = 293.0000  
RECEPTOR HEIGHT (M) = 0.0000  
URBAN/RURAL OPTION = RURAL  
BUILDING HEIGHT (M) = 0.0000  
MIN HORIZ BLDG DIM (M) = 0.0000  
MAX HORIZ BLDG DIM (M) = 0.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.  
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM  
VOLUME FLOW RATE = 0.30676556 (M\*\*3/S)

BUOY. FLUX = 0.653 M\*\*4/S\*\*3; MOM. FLUX = 1.212 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\*\*\*  
\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*  
\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	0.000	1	1.0	1.0	320.0	17.40	0.96	0.89	NO
100.	29.48	4	4.0	4.0	1280.0	5.72	8.28	4.78	NO
200.	19.00	4	2.0	2.0	640.0	9.61	15.72	8.79	NO
300.	13.86	4	1.5	1.5	480.0	12.21	22.80	12.45	NO
400.	11.08	4	1.0	1.0	320.0	17.40	29.79	15.90	NO
500.	9.087	4	1.0	1.0	320.0	17.40	36.42	18.83	NO
600.	7.433	4	1.0	1.0	320.0	17.40	42.95	21.67	NO
700.	6.140	4	1.0	1.0	320.0	17.40	49.39	24.44	NO
800.	5.642	6	1.0	1.0	10000.0	23.23	28.30	13.45	NO
900.	5.720	6	1.0	1.0	10000.0	23.23	31.38	14.35	NO
1000.	5.692	6	1.0	1.0	10000.0	23.23	34.43	15.23	NO
1100.	5.564	6	1.0	1.0	10000.0	23.23	37.47	16.03	NO
1200.	5.401	6	1.0	1.0	10000.0	23.23	40.48	16.81	NO
1300.	5.216	6	1.0	1.0	10000.0	23.23	43.47	17.57	NO
1400.	5.021	6	1.0	1.0	10000.0	23.23	46.45	18.31	NO
1500.	4.822	6	1.0	1.0	10000.0	23.23	49.41	19.04	NO
1600.	4.624	6	1.0	1.0	10000.0	23.23	52.35	19.75	NO
1700.	4.431	6	1.0	1.0	10000.0	23.23	55.28	20.45	NO
1800.	4.244	6	1.0	1.0	10000.0	23.23	58.19	21.14	NO
1900.	4.065	6	1.0	1.0	10000.0	23.23	61.09	21.81	NO
2000.	3.893	6	1.0	1.0	10000.0	23.23	63.97	22.47	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:  
28. 37.43 3 10.0 10.0 3200.0 3.39 3.97 2.43 NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
DWASH=NO MEANS NO BUILDING DOWNWASH USED  
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3\*LB

\*\*\*\*\*  
\*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
\*\*\*\*\*

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	37.43	28.	0.

## **SECTION 6. GAS AND LIQUID ANALYSES**

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JP Heard A-5H – HP Separator – Sampled 04/12/2013

JP Heard Bower No. 5H – Gas Evolved from Hydrocarbon Liquid Flashed – Sampled 01/24/2012

JP Heard Bower No. 5H – First Stage Separator Hydrocarbon Liquid – Sampled 01/24/2012



HOUSTON LABORATORIES  
8820 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

## Certificate of Analysis

Number: 1030-2013040373-005A

David Pena  
Aurora Oil & Gas  
1111 Louisiana Street  
Suite 4550  
Houston Tx 77002

April 17, 2013

Sample ID:  
Station Name : JP Heard A-5H  
Station Number :  
Station Location : Aurora  
Sample Point: HP Separator

Sampled By: DP  
Sample Of: Gas Spot  
Sample Date: 04/12/2013  
Sample Conditions: 151.0 psig , @ 119.0°F  
PO / Ref. No:

### ANALYTICAL DATA

Components	Mol %	Wt %	GPM at 14.650 psia	Method	Lab Tech.	Date Analyzed
GPA-2261 M JD 4/17/2013 5:02:46 AM						
Nitrogen	0.305	0.367				
Carbon Dioxide	2.218	4.196				
Methane	70.651	48.720				
Ethane	14.983	19.366	4.002			
Propane	7.261	13.763	1.998			
Iso Butane	0.856	2.139	0.280			
n-Butane	1.925	4.809	0.606			
Iso Pentane	0.451	1.399	0.165			
n-Pentane	0.490	1.520	0.177			
Hexane	0.268	0.993	0.110			
Heptanes Plus	0.592	2.728	0.273			
	100.000	100.000	7.611			
	C2 +	C3 +	iC5 +			
GPM TOTAL :	7.611	3.609	0.725			
Relative Density	Real Gas			0.8064		
Calculated Molecular Weight				23.26		
Compressibility Factor				0.9956		
GPA 2172-09 Calculation :						
Calculated Gross BTU per ft <sup>3</sup> @14.650 psia & 60°F						
Real Gas:	Dry BTU:		1339			
	Water Sat. Gas_Base BTU:		1316			
Comments :	H2O Mol% - 1.75_Wt% - 1.36					
	Cylinder Number 174					

*Chris Staley*

Hydrocarbon Laboratory Manager

#### Quality Assurance:

The above analyses are performed in accordance with ASTM, UOP or GPA guidelines for quality assurance, unless otherwise stated



FESCO, Ltd.  
1100 Fesco Avenue - Alice, Texas 78332

For: Cinco Natural Resources  
2626 Howell Street, Suite 800  
Dallas, Texas 75204

Date Sampled: 01/24/2012

Date Analyzed: 02/01/2012

Sample: J. P. Heard Bower No. 5-H

Job Number: J21380

FLASH LIBERATION OF HYDROCARBON LIQUID		
	Separator HC Liquid	Stock Tank
Pressure, psig	135	0
Temperature, °F	109	70
Gas Oil Ratio (1)	-----	68.1
Gas Specific Gravity (2)	-----	1.396
Separator Volume Factor (3)	1.0634	1.000

STOCK TANK FLUID PROPERTIES	
Shrinkage Recovery Factor (4)	0.9404
Oil API Gravity at 60 °F	43.95
Reid Vapor Pressure, psi (5)	---

Quality Control Check			
	Sampling Conditions	Test Samples	
Cylinder No.	-----	W-1585*	W-1636
Pressure, psig	135	105	100
Temperature, °F	109	65	65

(1) - Scf of flashed vapor per barrel of stock tank oil

(2) - Air = 1.000

(3) - Separator volume / Stock tank volume

(4) - Fraction of first stage separator liquid

(5) - Absolute pressure at 100 deg F

Analyst: J. G.

\* Sample used for flash study

Base Conditions: 14.65 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

David Dannhaus 361-661-7015



FESCO, Ltd.  
1100 Fesco Avenue - Alice, Texas 78332

February 9, 2012

For: Cinco Natural Resources  
2626 Howell Street, Suite 800  
Dallas, Texas 75204

Sample: J. P. Heard Bower No. 5-H  
Gas Evolved From Hydrocarbon Liquid Flashed  
From 135 psig & 109 deg F to 0 psig & 70 deg F  
Spot Gas Sample @ 0 psig & 70 F

Station: N/A  
Date Sampled: 1/24/2012

### CHROMATOGRAPH ANALYSIS

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	0.018	
Nitrogen	0.164	
Carbon Dioxide	1.144	
Methane	22.320	
Ethane	25.068	6.765
Propane	26.891	7.476
Isobutane	4.455	1.472
n-Butane	10.728	3.413
Isopentane	2.732	1.008
n-Pentane	2.799	1.024
Hexanes	2.109	0.875
Heptanes Plus	1.572	0.772
Totals:	100.000	22.805

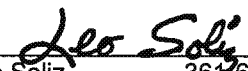
#### Computed Real Properties:

Specific Gravity	1.396 (Air=1.000)
Compressibility(Z)	0.9853
Gross Heating Value at 14.650 psia and 60 F	
Dry Basis	2281 BTU/CF
Saturated Basis	2241 BTU/CF

\*H2S Test on Location by Sensidyne Method Yielded 180.0 PPM,  
Which Is Equivalent To 0.018 Mol% or 11.3 Gr/100 CF

Base Conditions: 14.650 psia and 60 F

Certified: FESCO, Ltd. - Alice, Texas

  
Leo Soliz 361-661-7015

Job Number: 21380.001  
Analyst ID: DV

Cyl Number: F-7

January 31, 2012



**FESCO, Ltd.**  
1100 FESCO Ave. - Alice, TX 78332

For: Cinco Natural Resources  
2626 Howell Street, Suite 800  
Dallas, Texas 75204

Field: N/A  
County: Atascosa, Texas

Sample: J. P. Heard Bower No. 5-H  
Type: Separator Water  
Formation: N/A  
Depth (Ft): N/A

Date: 1/27/2012  
Time: 10:10

# REPORT OF WATER ANALYSIS

## \*\*\*\*\* Dissolved Solids \*\*\*\*\*

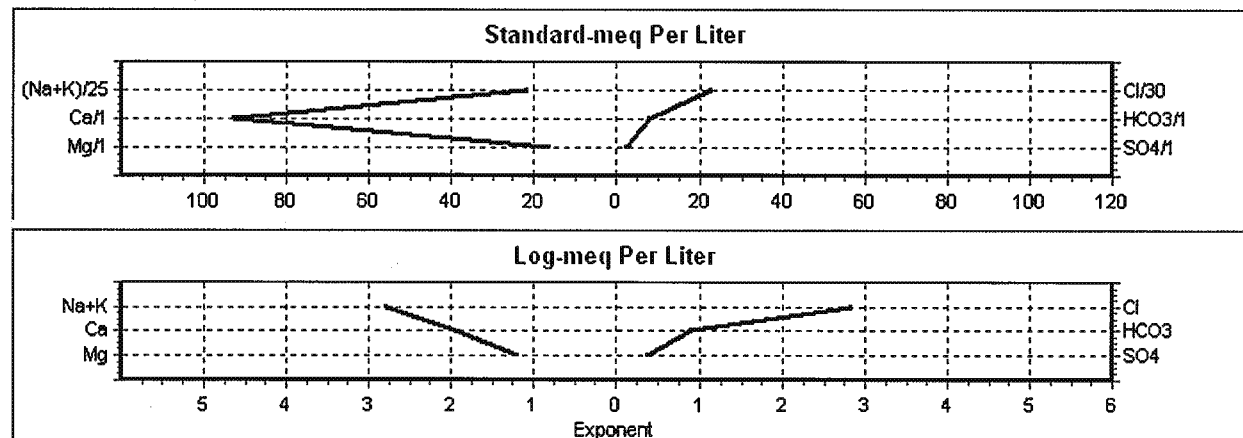
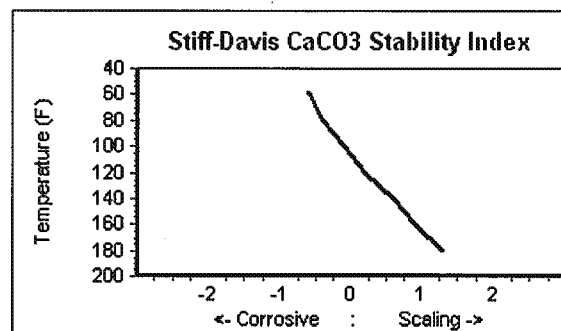
	mg/L	meq/L
Sodium (Na)	12491.10	543.33
Calcium (Ca)	1857.55	92.69
Magnesium (Mg)	196.34	16.15
Barium (Ba)	9.11	0.13
Potassium (K)	198.22	5.07
Iron (Fe)	17.82	---

Chloride (Cl)	24350.00	686.88
Sulfate (SO4)	115.00	2.39
Carbonate (CO3)	0.00	0.00
Bicarbonate(HCO3)	478.00	7.83
Hydroxide (OH)	0.00	0.00

Sulfide (H2S)	0.00	
Total Solids	39713	
Total Alkalinity (CaCO3)	392	
Total Hardness (CaCO3)	5478	

## \*\*\*\*\* Other Properties \*\*\*\*\*

pH	6.47
Specific Gravity @ 60/60 °F	1.025
Resistivity (Ohm-meters @ 77.0 °F)	0.156



Certified: FESCO, Ltd. - Alice, Texas

*David Dannhaus*

David Dannhaus 361-661-7015

Job Number: 21380 . 1126

ED\_005393\_00000636-00111

March 7, 2012

**FESCO, Ltd.**  
**1100 FESCO Avenue - Alice, Texas 78332**

**For:** Cinco Natural Resources  
2626 Howell Street, Suite 800  
Dallas, Texas 75204

**Sample:** J. P. Heard Bower No. 5-H  
First Stage Separator Hydrocarbon Liquid  
Sampled @ 135 psig & 109 °F

Date Sampled: 01-24-12

Job Number: 21380.002

**CHROMATOGRAPH EXTENDED ANALYSIS - SUMMATION REPORT**

COMPONENT	MOL %	LIQ VOL %	WT %
Nitrogen	0.018	0.003	0.003
Carbon Dioxide	0.159	0.041	0.042
Methane	2.854	0.732	0.278
Ethane	3.456	1.399	0.631
Propane	5.575	2.325	1.493
Isobutane	1.494	0.740	0.527
n-Butane	4.891	2.334	1.727
2,2 Dimethylpropane	0.031	0.018	0.014
Isopentane	2.662	1.474	1.167
n-Pentane	3.583	1.966	1.570
2,2 Dimethylbutane	0.048	0.030	0.025
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.350	0.217	0.183
2 Methylpentane	1.453	0.913	0.760
3 Methylpentane	0.881	0.545	0.461
n-Hexane	2.482	1.545	1.299
Heptanes Plus	<u>70.064</u>	<u>85.718</u>	<u>89.818</u>
Totals:	100.000	100.000	100.000

**Characteristics of Heptanes Plus:**

Specific Gravity -----	0.8275 (Water=1)
°API Gravity -----	39.50 @ 60°F
Molecular Weight -----	211.0
Vapor Volume -----	12.44 CF/Gal
Weight -----	6.89 Lbs/Gal

**Characteristics of Total Sample:**

Specific Gravity -----	0.7897 (Water=1)
°API Gravity -----	47.68 @ 60°F
Molecular Weight -----	164.6
Vapor Volume -----	15.23 CF/Gal
Weight -----	6.58 Lbs/Gal

Base Conditions: 14.650 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

Analyst: JC  
Processor: JCdjv  
Cylinder ID: W-1636

David Dannhaus 361-661-7015

## TANKS DATA INPUT REPORT

COMPONENT	Mol %	LiqVol %	Wt %
Carbon Dioxide	0.159	0.041	0.042
Nitrogen	0.018	0.003	0.003
Methane	2.854	0.732	0.278
Ethane	3.456	1.399	0.631
Propane	5.575	2.325	1.493
Isobutane	1.494	0.740	0.527
n-Butane	4.922	2.352	1.740
Isopentane	2.662	1.474	1.167
n-Pentane	3.583	1.966	1.570
Other C-6's	2.732	1.705	1.430
Heptanes	6.384	4.152	3.725
Octanes	6.734	4.793	4.449
Nonanes	5.162	4.222	3.976
Decanes Plus	48.352	70.696	75.618
Benzene	0.363	0.154	0.172
Toluene	1.192	0.604	0.667
E-Benzene	0.292	0.171	0.188
Xylenes	1.585	0.926	1.022
n-Hexane	2.482	1.545	1.299
2,2,4 Trimethylpentane	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>
Totals:	100.000	100.000	100.000

## Characteristics of Total Sample:

Specific Gravity -----	0.7897 (Water=1)
°API Gravity -----	47.68 @ 60°F
Molecular Weight -----	164.6
Vapor Volume -----	15.23 CF/Gal
Weight -----	6.58 Lbs/Gal

## Characteristics of Decanes (C10) Plus:

Specific Gravity -----	0.8447 (Water=1)
Molecular Weight -----	257.5

## Characteristics of Stock Tank:

°API Gravity -----	43.84 @ 60°F
Reid Vapor Pressure (ASTM D-5191) -----	psi

QUALITY CONTROL CHECK			
	Sampling Conditions	Test Samples	
Cylinder Number	-----	W-1636*	W-1585
Pressure, PSIG	135	100	105
Temperature, °F	109	65	65

\* Sample used for analysis

## TOTAL EXTENDED REPORT

COMPONENT	Mol %	LiqVol %	Wt %
Nitrogen	0.018	0.003	0.003
Carbon Dioxide	0.159	0.041	0.042
Methane	2.854	0.732	0.278
Ethane	3.456	1.399	0.631
Propane	5.575	2.325	1.493
Isobutane	1.494	0.740	0.527
n-Butane	4.891	2.334	1.727
2,2 Dimethylpropane	0.031	0.018	0.014
Isopentane	2.662	1.474	1.167
n-Pentane	3.583	1.966	1.570
2,2 Dimethylbutane	0.048	0.030	0.025
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.350	0.217	0.183
2 Methylpentane	1.453	0.913	0.760
3 Methylpentane	0.881	0.545	0.461
n-Hexane	2.482	1.545	1.299
Methylcyclopentane	0.686	0.368	0.351
Benzene	0.363	0.154	0.172
Cyclohexane	0.897	0.462	0.459
2-Methylhexane	0.746	0.525	0.454
3-Methylhexane	0.828	0.576	0.504
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C-7's	1.085	0.726	0.654
n-Heptane	2.141	1.496	1.303
Methylcyclohexane	1.422	0.865	0.848
Toluene	1.192	0.604	0.667
Other C-8's	3.484	2.510	2.333
n-Octane	1.828	1.418	1.268
E-Benzene	0.292	0.171	0.188
M & P Xylenes	1.116	0.656	0.720
O-Xylene	0.469	0.270	0.302
Other C-9's	3.716	2.990	2.849
n-Nonane	1.446	1.232	1.127
Other C-10's	4.701	4.157	4.034
n-decane	1.220	1.134	1.055
Undecanes(11)	4.763	4.321	4.253
Dodecanes(12)	3.936	3.858	3.850
Tridecanes(13)	3.761	3.953	3.998
Tetradecanes(14)	3.229	3.635	3.727
Pentadecanes(15)	2.937	3.542	3.675
Hexadecanes(16)	2.481	3.197	3.346
Heptadecanes(17)	2.201	2.999	3.169
Octadecanes(18)	2.062	2.958	3.143
Nonadecanes(19)	1.949	2.914	3.114
Eicosanes(20)	1.645	2.555	2.747
Heneicosanes(21)	1.388	2.268	2.453
Docosanes(22)	1.279	2.178	2.369
Tricosanes(23)	1.150	2.030	2.221
Tetracosanes(24)	1.034	1.891	2.078
Pentacosanes(25)	0.941	1.787	1.973
Hexacosanes(26)	0.854	1.679	1.862
Heptacosanes(27)	0.797	1.625	1.810
Octacosanes(28)	0.742	1.565	1.749
Nonacosanes(29)	0.647	1.410	1.580
Triacotanes(30)	0.623	1.398	1.573
Hentriacotanes Plus(31+)	<u>4.012</u>	<u>13.641</u>	<u>15.839</u>
Total	100.000	100.000	100.000

## **SECTION 7. ENGINE DATA**

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Engine Specification Sheet  
Engine Catalyst Sheet

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	10.3:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210	Air Fuel Ratio Control Required	
Ignition System	MAG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	CATALYST	Rated Altitude (ft)	500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	215	161	108

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7915	8467	9732
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	1320	1056	792
Air Mass Flow (Wet)	scfm	288	230	173
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	in. Hg (abs)	27	23.3	18.5
Inlet Manifold Temperature (10)	°F	82	82	82
Timing (11)	°BTDC	25	25	25
Exhaust Stack Temperature	°F	1215	1164	1119
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1043	808	587
Exhaust Gas Mass Flow (Wet)	lb/hr	1405	1124	844

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	11.2	11.8	11.9
(Corr. 15% O2)	ppm	819	810	723
Carbon Monoxide (CO) (9)	g/bhp-hr	12.3	13.1	13.4
(Corr. 15% O2)	ppm	1063	878	733
Total Hydrocarbons (THC) (9)	g/bhp-hr	1.4	1.3	1.6
(Corr. 15% O2)	ppm	298	268	276
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.21	0.20	0.23
(Corr. 15% O2)	ppm	45	40	41
Exhaust Oxygen (9)	%	0.5	0.5	0.4
Lambda		1.00	0.99	0.97

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	28362	22755	17437
Work Output	Btu/min	9118	6838	4559
Heat Rejection to Jacket (2) (6)	Btu/min	10766	9381	8063
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1134	910	697
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	7472	5700	4103
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	5749	4322	3066
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

# G3304 NA

GAS COMPRESSION APPLICATION

## GAS ENGINE SITE SPECIFIC TECHNICAL DATA

Cinco - Julie Beck

**CATERPILLAR®**

ENGINE SPEED (rpm): 1800  
COMPRESSION RATIO: 10.5:1  
JACKET WATER OUTLET (°F): 210  
COOLING SYSTEM: JW+OC  
IGNITION SYSTEM: MAG  
EXHAUST MANIFOLD: WC  
COMBUSTION: Catalyst  
EXHAUST O2 EMISSION LEVEL %: 0.5  
SET POINT TIMING: 24.8

FUEL SYSTEM: LPG IMPCO  
WITH CUSTOMER SUPPLIED AIR FUEL RATIO CONTROL

**SITE CONDITIONS:**

FUEL: Gas Analysis  
FUEL PRESSURE RANGE(psig): 1.5-10.0  
FUEL METHANE NUMBER: 48.9  
FUEL LHV (Btu/scf): 1092  
ALTITUDE(ft): 500  
MAXIMUM INLET AIR TEMPERATURE(°F): 77  
NAMEPLATE RATING: 95 bhp@1800rpm

RATING	NOTES	LOAD	MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE		
			100%	100%	75%	50%
ENGINE POWER	(1)	bhp	95	95	71	48
INLET AIR TEMPERATURE		°F	77	77	77	77

ENGINE DATA						
FUEL CONSUMPTION (LHV)	(2)	Btu/bhp-hr	8262	8262	8560	9975
FUEL CONSUMPTION (HHV)	(2)	Btu/bhp-hr	9118	9118	9447	11008
AIR FLOW	(3)(4)	lb/hr	626	626	494	383
AIR FLOW WET (77°F, 14.7 psia)	(3)(4)	scfm	141	141	111	86
INLET MANIFOLD PRESSURE	(5)	in Hg(abs)	26.4	26.4	22.8	18.7
EXHAUST STACK TEMPERATURE	(6)	°F	1105	1105	1079	1025
EXHAUST GAS FLOW (@ stack temp, 14.5 psia)	(7)(4)	ft3/min	459	459	356	267
EXHAUST GAS MASS FLOW	(7)(4)	lb/hr	665	665	524	407

EMISSIONS DATA						
NOx (as NO2)	(8)	g/bhp-hr	13.92	13.92	12.22	9.79
CO	(8)	g/bhp-hr	13.92	13.92	11.50	9.61
THC (mol. wt. of 15.84)	(8)	g/bhp-hr	2.37	2.37	2.77	3.58
NMHC (mol. wt. of 15.84)	(8)	g/bhp-hr	0.87	0.87	1.02	1.32
NMNEHC (VOCs) (mol. wt. of 15.84)	(8)(9)	g/bhp-hr	0.52	0.52	0.61	0.79
HCHO (Formaldehyde)	(8)	g/bhp-hr	0.27	0.27	0.30	0.32
CO2	(8)	g/bhp-hr	568	568	607	716
EXHAUST OXYGEN	(10)	% DRY	0.5	0.5	0.5	0.5

HEAT REJECTION						
HEAT REJ. TO JACKET WATER (JW)	(11)	Btu/min	4487	4487	3599	3175
HEAT REJ. TO ATMOSPHERE	(11)	Btu/min	523	523	407	317
HEAT REJ. TO LUBE OIL (OC)	(11)	Btu/min	734	734	589	519

HEAT EXCHANGER SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+OC)	(12)	Btu/min	5816

**CONDITIONS AND DEFINITIONS**

Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature.  
100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature.  
Max. rating is the maximum capability for the specified fuel at site altitude and reduced inlet air temperature.  
Lowest load point is the lowest continuous duty operating load allowed. No overload permitted at rating shown.

For notes information consult page three.

**WARNING(S)**

1. The lower heating value of the fuel is higher than or equal to 1050 Btu/scf and lower than 1250 Btu/scf. May require on-site adjustment or tuning of standard fuel system hardware.

Engine Speed (rpm) 1800  
 Compression Ratio 10.5:1  
 Aftercooler Inlet Temperature (°F) N/A  
 Jacket Water Outlet Temperature (°F) 210  
 Ignition System MAG  
 Exhaust Manifold WATER COOLED  
 Combustion System Type CATALYST

Fuel NAT GAS  
 LHV of Fuel (Btu/SCF) 920  
 Fuel System LPG IMPCO  
 Air Fuel Ratio Control Required  
 Minimum Fuel Pressure (psig) 1.5  
 Methane Number at Conditions Shown 80  
 Rated Altitude (ft) 500

at 77°F Design Temperature

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	145	109	73

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7775	8318	9509
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	893	722	557
Air Mass Flow (Wet)	scfm	195	158	122
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	in. Hg (abs)	26.3	20.7	16.2
Inlet Manifold Temperature (10)	°F	104	106	104
Timing (11)	°BTDC	21	21	21
Exhaust Stack Temperature	°F	1063	1027	988
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	634	497	376
Exhaust Gas Mass Flow (Wet)	lb/hr	949	767	591

Engine Emissions Data				
Nitrous Oxides (NOx as NO <sub>2</sub> ) (9)	g/bhp-hr	10.9	11.7	13.8
(Corr. 15% O <sub>2</sub> )	ppm	536	555	594
Carbon Monoxide (CO) (9)	g/bhp-hr	13.1	11.5	10.9
(Corr. 15% O <sub>2</sub> )	ppm	643	546	468
Total Hydrocarbons (THC) (9)	g/bhp-hr	2.2	2.3	2.7
(Corr. 15% O <sub>2</sub> )	ppm	107	111	117
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.33	0.35	0.41
(Corr. 15% O <sub>2</sub> )	ppm	16	17	18
Exhaust Oxygen (9)	%	0.5	0.5	0.7
Lambda		1.01	1.01	1.03

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	18790	15076	11490
Work Output	Btu/min	6149	4612	3075
Heat Rejection to Jacket (2) (6)	Btu/min	7367	6292	5243
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	752	603	460
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	4336	3369	2479
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	3175	2432	1758
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

# G379 EMISSIONS DATA

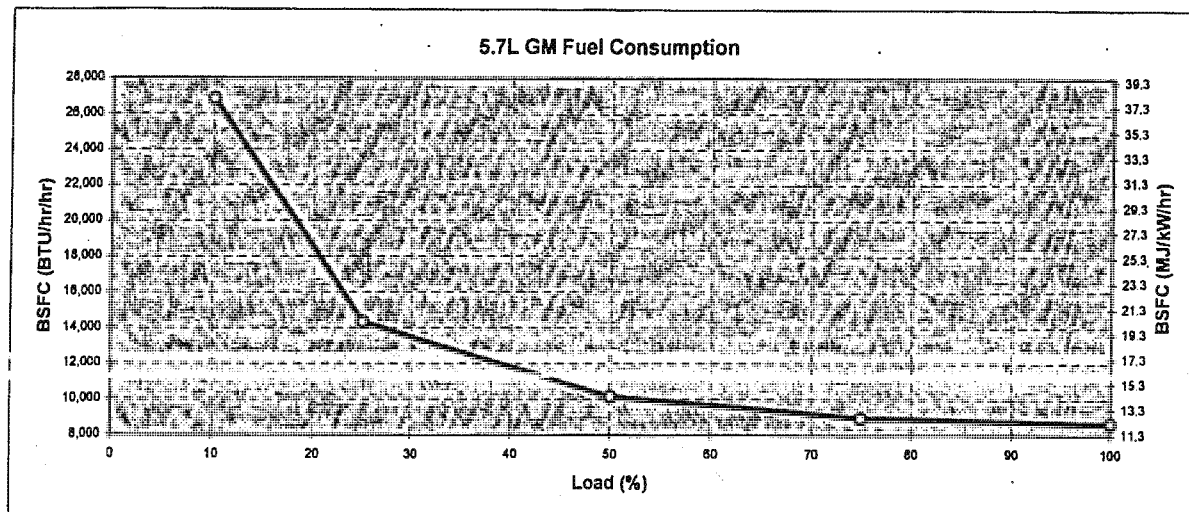
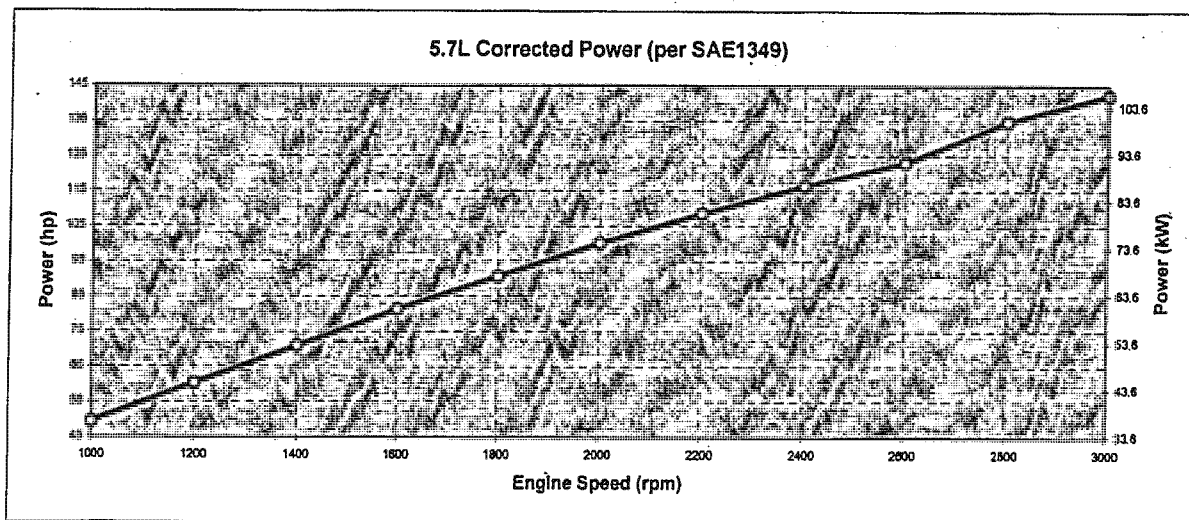
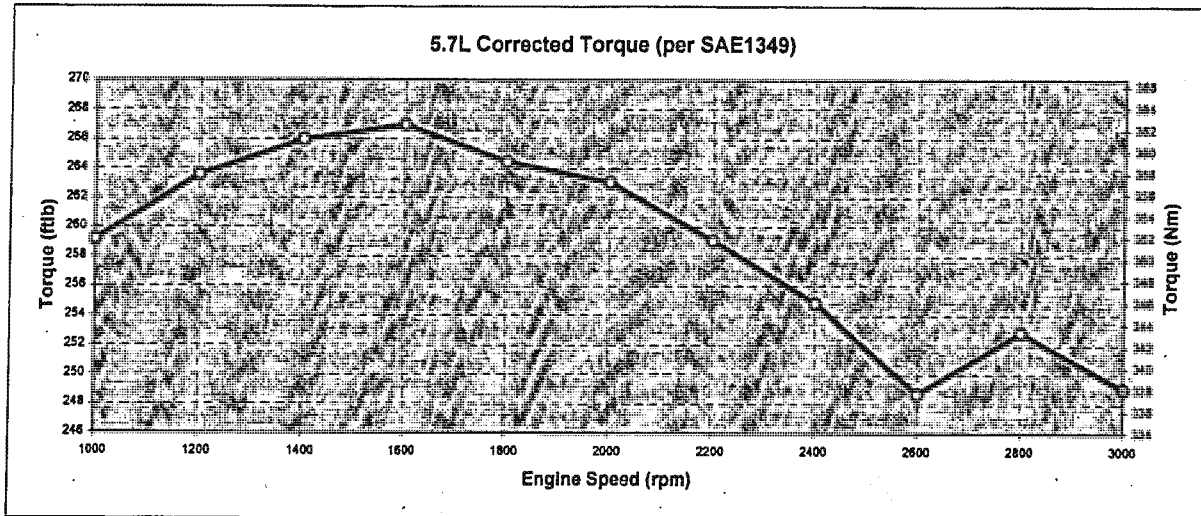
## G379 EMISSIONS DATA @ STANDARD RATINGS

ENGINE	RATING (hp/rpm)	NOx	CO (gram/hp-hr)	HC	%O2	A/FR vol/vol	Tstack deg F	EXH FLOW cfm	AIR FLOW kg/hr	BSFC Btu/hp-hr
NA HCR	330/1200 stand/catalyst	8.7	7.9	3.1	0.5	9.5	1086	1398	901	7814
NA HCR	275/1000 stand catalyst	18.3 11.2	0.8 12.1	1.2 1.7	2.0 0.5	10.5 9.5	1007 1012	1172 1101	801 745	7494 7704
NA LCR	300/1200 stand/catalyst	11.4	11.5	0.8	0.5	9.5	1174	1491	909	8843
NA LCR	245/1000 stand catalyst	15.1 11.3	0.8 11.8	0.8 0.8	2.0 0.5	10.5 9.5	1095 1138	1238 1200	798 749	8311 8822
TA LCR	415/1200 stand catalyst	20.9 9.8	0.8 10.7	0.8 0.8	2.0 0.5	10.5 9.5	1037 1097	2270 2225	1520 1424	7600 7857
TA LCR	370/1000 stand catalyst	19.7 10.0	0.9 9.7	0.9 0.9	2.0 0.5	10.5 9.5	1010 1047	1912 1794	1304 1188	7514 7552
TA LCR	465/1200 stand	18.9	0.8	1.0	2.0	—	1128	2140	1349	8061
TA HCR	465/1200 stand catalyst	15.4 10.7	1.1 11.1	0.9 1.9	2.0 0.5	10.5 9.5	1070 1102	2689 2533	1762 1616	7365 7464
TA LCR	405/1000 stand	17.6	0.9	1.2	2.0	—	1094	1799	1159	7952
TA HCR	405/1000 stand catalyst	15.1 9.2	0.8 9.3	1.1 1.5	2.0 0.5	10.5 9.5	1014 1046	2234 2119	1519 1402	7307 7453



# Buck's Engines

## GM Vortec 5.7L Engine



BEST POSSIBLE IMAGE

**MIRATECH Emissions Control Equipment Specification Summary**

Proposal Number: TJ-12-2475

**Engine Data**

Number of Engines: 1  
Application: Gas Compression  
Engine Manufacturer: General Motors  
Model Number: Vortec 5.7L NA  
Power Output: 92 bhp  
Lubrication Oil: 0.6 wt% sulfated ash or less  
Type of Fuel: Natural Gas  
Exhaust Flow Rate: 650 acfm (cfm)  
Exhaust Temperature: 1,200°F

**System Details**

Housing Model Number: VXCI-1005-3.5-HSG  
Element Model Number: VX-RE-05XC  
Number of Catalyst Layers: 1  
Number of Spare Catalyst Layers: 1  
System Pressure Loss: 4.0 inches of WC (Fresh)  
Sound Attenuation: 28-32 dBA insertion loss  
Exhaust Temperature Limits: 750 – 1250°F (catalyst inlet); 1350°F (catalyst outlet)

**NSCR Housing & Catalyst Details**

Model Number: VXCI-1005-3.5-XC1  
Material: Carbon Steel  
Inlet Pipe Size & Connection: 3.5 inch FF Flange, 150# ANSI standard bolt pattern  
Outlet Pipe Size & Connection: 3.5 inch FF Flange, 150# ANSI standard bolt pattern  
Overall Length: 43 inches  
Weight Without Catalyst: 98 lbs  
Weight Including Catalyst: 104 lbs  
Instrumentation Ports: 1 inlet/1 outlet (1/2" NPT)

**Emission Requirements**

Exhaust Gases	Engine Outputs (g/ bhp-hr)	Reduction (%)	Warranted Converter Outputs (g/ bhp-hr)	Requested Emissions Targets
NOx	14.00	93%	1.00	1 g/bhp-hr
CO	11.00	82%	2.00	2 g/bhp-hr
NMNEHC	0.40	0%	0.70	.7 g/bhp-hr
Oxygen	0.5%			

MIRATECH warrants the performance of the converter, as stated above, per the MIRATECH General Terms and Conditions of Sale.

**TABLE 2b, Engine Parameters and Emission Factors**

**Cinco Natural Resources Corporation  
Heard CDP  
Equipment Parameters and Emission Factors**

**Equipment Information**

Unit ID:	<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>C4</b>
Make:	Caterpillar	Caterpillar	Caterpillar	Caterpillar
Model:	G3406 NA	G3304 NA	G3306 NA	G379 NA
Design Class:	4S-RB	4S-RB	4S-RB	4S-RB
Controls:	NSCR	NSCR	NSCR	NSCR
Horsepower (hp):	215	95	145	330
Fuel Use (Btu/hp-hr):	7,915	8,262	7,775	7,814
Fuel Use (scfh):	1,558	719	1,032	2,361
Stack Height (ft):	12.0	8.0	10.0	15.0
Stack Diameter (ft):	0.33	0.25	0.25	0.33
Exhaust Flow (acfm):	1,043	459	634	1,398
Exh. Velocity (fps):	203.2	155.8	215.3	272.4
Exhaust Temp (°F):	1,215	1,105	1,063	1,086
Moisture Content:	15.80%	15.47%	15.66%	16.49%
Operating Hours:	8,760	8,760	8,760	8,760

Fuel Heat Content (Btu/scf): 1,092

**Emission Factors (g/hp-hr)\***

<b><u>Pre-Control</u></b>				
NOx:	12.90	13.92	10.90	8.70
CO:	13.70	13.92	13.10	7.90
VOC:	0.27	0.52	0.33	0.27
Formaldehyde:	0.25	0.27	0.19	0.25
<b><u>Control Efficiency</u></b>				
NOx:	95.00%	95.00%	95.00%	92.50%
CO:	95.00%	95.00%	95.00%	92.50%
VOC:	50.00%	50.00%	50.00%	50.00%
Formaldehyde/HAP:	50.00%	50.00%	50.00%	50.00%
Other HAPs:	50.00%	50.00%	50.00%	50.00%
<b><u>Post-Control</u></b>				
NOx:	0.65	0.70	0.55	0.65
CO:	0.69	0.70	0.66	0.59
VOC:	0.14	0.26	0.17	0.14
Formaldehyde:	0.13	0.14	0.10	0.13

\*Source: Cat -Manufacturer data (may have safety factor for operational flexibility).

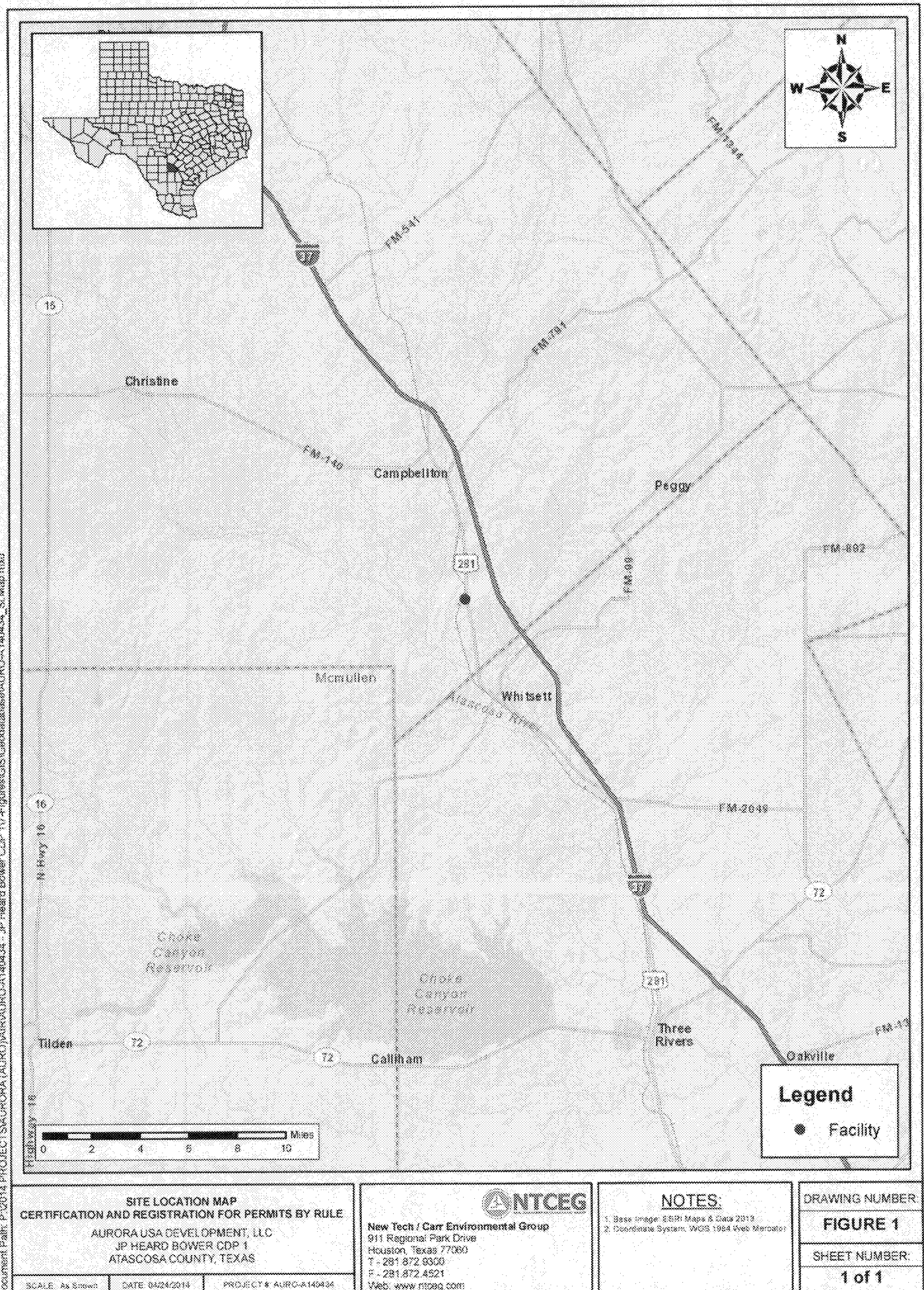
Source - All Other Pollutants except formaldehyde for Cats: AP-42 Emission Factors (Refer to attached page).

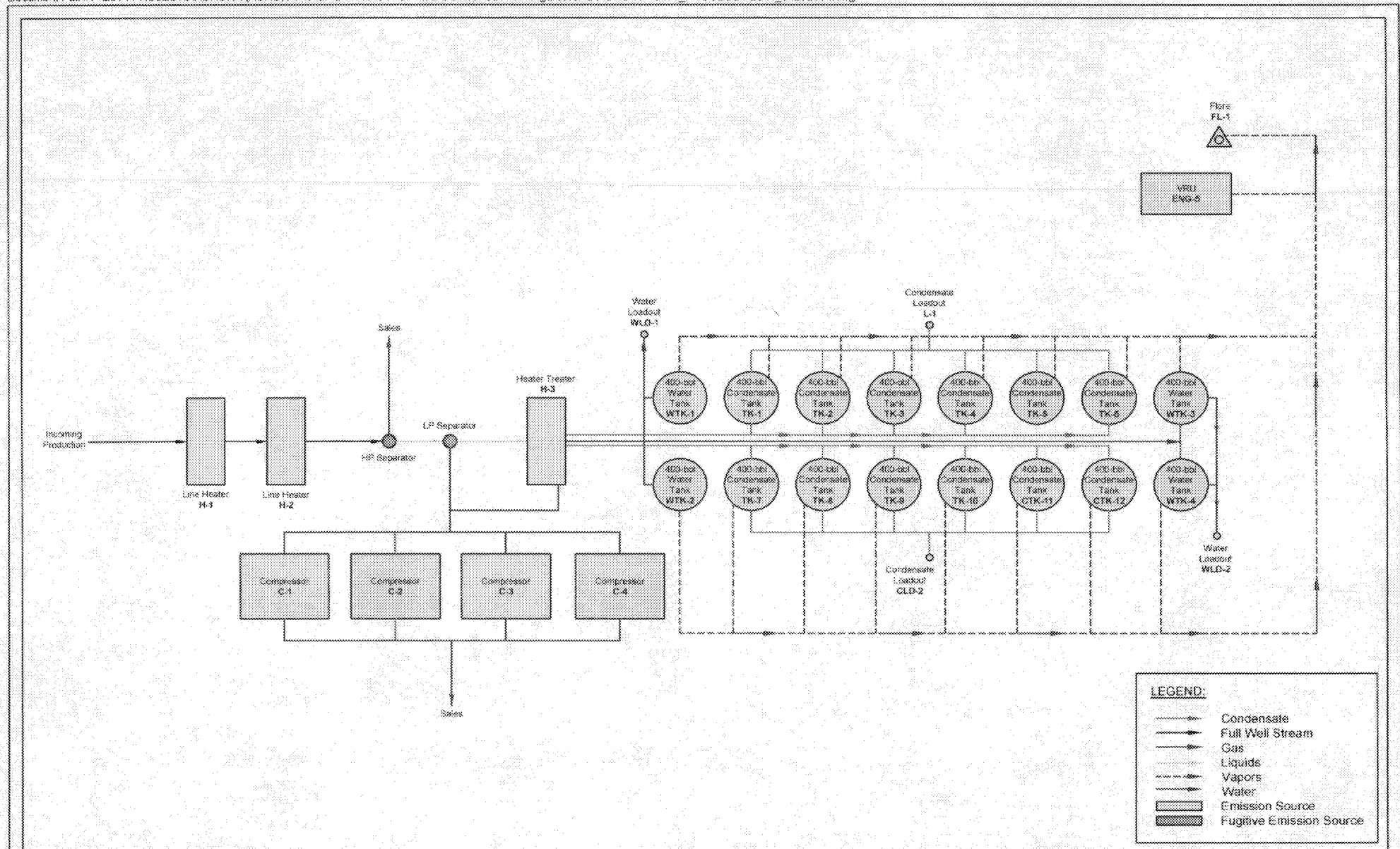
## **SECTION 8. FIGURES**

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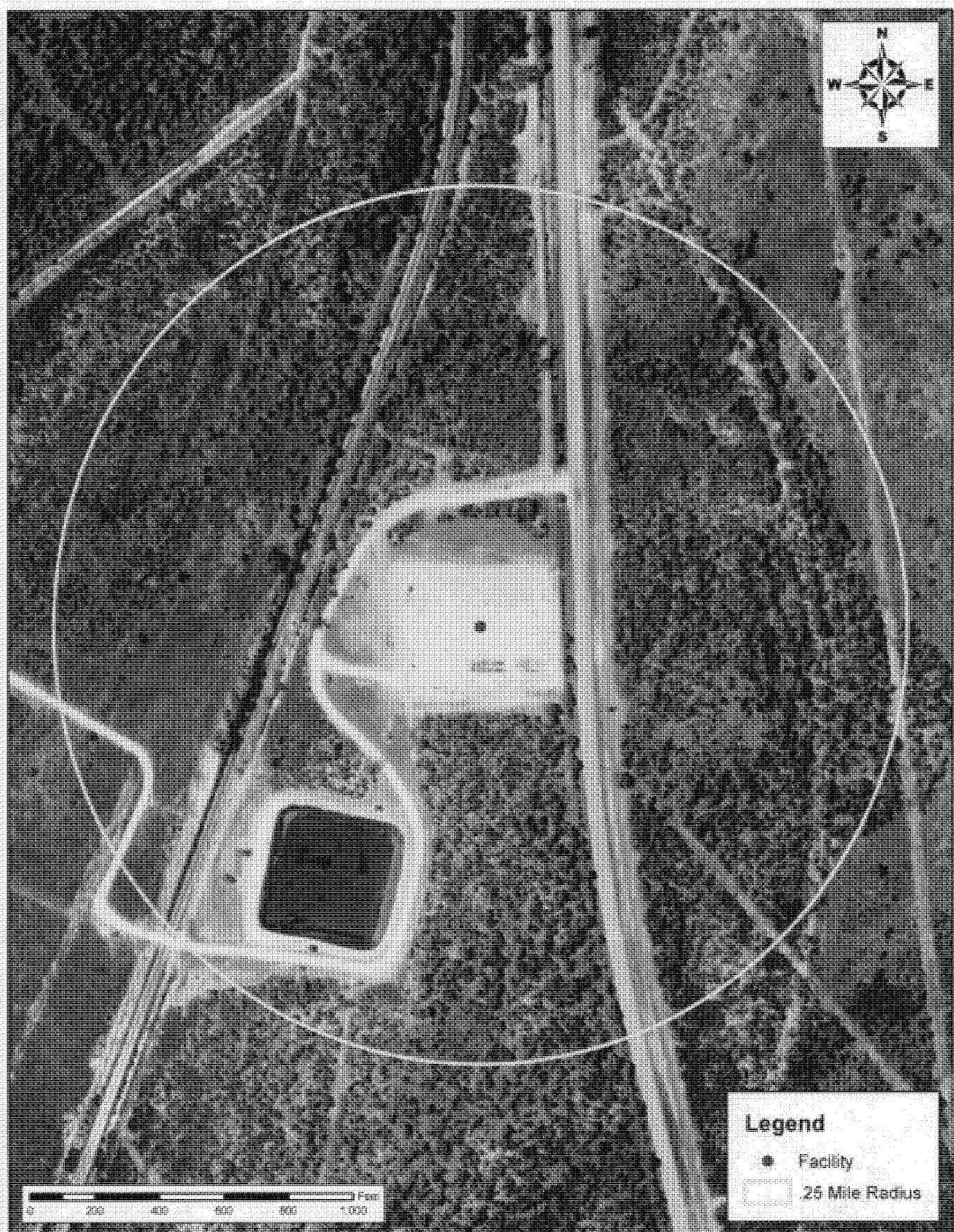
- Figure 1. Site Location Map
- Figure 2. Process Flow Diagram
- Figure 3. ¼-Mile Radius Map

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<p>FIGURE 2</p> <p>SHEET NUMBER</p> <p>1 of 1</p>	<p><b>PROCESS FLOW DIAGRAM</b></p> <p><b>CERTIFICATION AND REGISTRATION FOR PERMITS BY RULE</b></p> <p>AURORA USA DEVELOPMENT, LLC</p> <p>JP HEARD BOWER CDP 1</p> <p>ATASCOSA COUNTY, TEXAS</p>	<p><b>New Tech / Carr Environmental Group</b></p> <p>911 Regional Park Drive</p> <p>Houston, Texas 77060</p> <p>T - 281.872.9300</p> <p>F - 281.872.4521</p> <p>Web - www.ntceg.com</p>	<p><b>NOTES:</b></p> <p>1. Site Coordinates (NAD 83): 28.8886, -95.2928</p>
	<p>SCALE: Not to Scale</p> <p>DATE: 04/29/2014</p> <p>PROJECT #: AURO-A140434</p>		

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## RADJIS MAP

AURORA USA DEVELOPMENT, LLC  
JP HEARD BOWER COP 1  
ATASCOSA COUNTY, TEXAS

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

2015年10月10日 星期六

姓名	性别	年龄	职业	住址	联系电话	电子邮箱	QQ	微信	支付宝	银行卡	其他
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吴二十一	男	43	经理	广东省珠海市香洲区湾仔100号	12000120000	wushi@163.com	
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陈二十四	女	39	销售	浙江省绍兴市越城区鲁迅路100号	11700117000	chenshi@163.com	
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周二十六	女	26	设计师	上海市杨浦区五角场100号	11500115000	zhoushi@163.com	
吴二十七	男	35	司机	广东省东莞市南城街道100号	11400114000	wushi@163.com	
郑二十八	女	30	文员	江苏省常州市天宁区博爱路100号	11300113000	zhengshi@163.com	
冯二十九	男	46	厨师	四川省达州市达川区达川大街100号	11200112000	foneshi@163.com	
陈三十	女	35	教师	浙江省金华市婺城区婺州街100号	11100111000	chenshi@163.com	

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**FIGURE 3**

姓名	性别	年龄	职业	住址	联系电话	电子邮箱	身份证号	银行卡号	支付宝账号	微信账号	其他联系方式
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孙七	男	32	工程师	江苏省南京市	13565432109	sunqi@126.com	320101199801010001	62284801010101010101	15888888888	sunqi	15888888888
周八	女	27	市场专员	四川省成都市	13454321098	zhouba@126.com	510101199801010001	62284801010101010101	15888888888	zhouba	15888888888
吴九	男	31	产品经理	福建省厦门市	13343210987	wujiu@126.com	350101199801010001	62284801010101010101	15888888888	wujiu	15888888888
郑十	女	29	运营专员	山东省济南市	13232109876	zhengshi@126.com	370101199801010001	62284801010101010101	15888888888	zhengshi	15888888888
陈十一	男	33	数据分析师	河南省郑州市	13121098765	chen11@126.com	410101199801010001	62284801010101010101	15888888888	chen11	15888888888
冯十二	女	26	客服专员	湖北省武汉市	13010987654	feng12@126.com	420101199801010001	62284801010101010101	15888888888	feng12	15888888888
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王十五	男	31	产品经理	浙江省宁波市	12787654321	wang15@126.com	330101199801010001	62284801010101010101	15888888888	wang15	15888888888
赵十六	女	27	运营专员	江苏省苏州市	12676543210	zhaoliu16@126.com	320101199801010001	62284801010101010101	15888888888	zhaoliu16	15888888888
孙十七	男	32	工程师	四川省绵阳市	12565432109	sunqi17@126.com	510101199801010001	62284801010101010101	15888888888	sunqi17	15888888888
周十八	女	26	市场专员	福建省福州市	12454321098	zhouba18@126.com	350101199801010001	62284801010101010101	15888888888	zhouba18	15888888888
吴十九	男	31	产品经理	山东省青岛市	12343210987	wujiu19@126.com	370101199801010001	62284801010101010101	15888888888	wujiu19	15888888888
郑二十	女	29	运营专员	河南省郑州市	12232109876	zhengshi20@126.com	410101199801010001	62284801010101010101	15888888888	zhengshi20	15888888888

**100**

**END OF APPLICATION**

From: (713) 401-1682  
Becky Price

Origin ID: EIXA



1200 Smith Street  
Suite 2300  
HOUSTON, TX 77002



J14101402070326

Ship Date: 27MAY14  
ActWgt: 1.0 LB  
CAD: 105471125/NET3490

Delivery Address Bar Code



SHIP TO: (512) 239-1000

BILL SENDER

Air Permits Initial Rev. Team  
Texas Comm.on Environmental Quality  
Building C  
12100 Park 35 Circle  
AUSTIN, TX 78753

Ref #  
Invoice #  
PO #  
Dept #

**RECEIVED**  
MAY 28 2014  
APIRT

MAY 28 2014

WED - 28 MAY AA

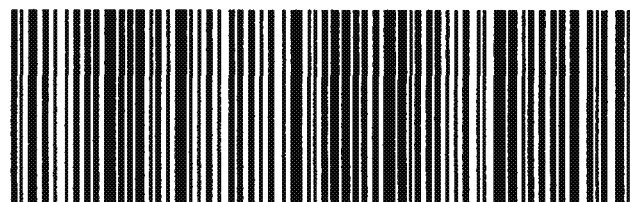
STANDARD OVERNIGHT

TRK#  
0201

7701 0393 2501  
TCEQ MAIL CENTER  
CS

78753  
TX-US  
AUS

**A8 MMRA**



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Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on [fedex.com](http://fedex.com). FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

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Becky Price

Origin ID: EIXA



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**Texas Comm.on Environmental Quality**  
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Ref #  
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Dept #

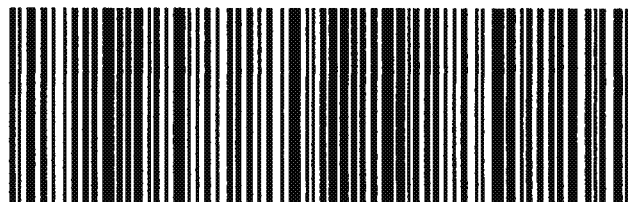
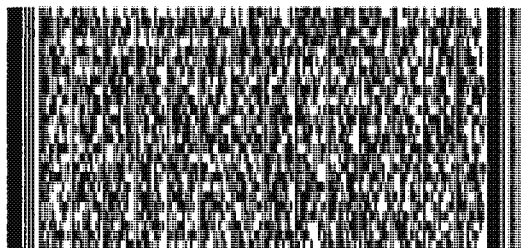
**WED - 28 MAY AA**  
**STANDARD OVERNIGHT**

TRK# 7701 0393 2501

0201

**A8 MMRA**

**78753**  
TX-US  
**AUS**



522G162D3F220

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**OXY USA WTP Limited  
Partnership**

A subsidiary of Occidental Petroleum Corporation

5 Greenway Plaza, Suite 110, Houston, Texas 77046-0521  
Direct Phone: 713-366-5331

December 13, 2019

U.S. Environmental Protection Agency, Region 6  
Air Enforcement Branch  
1201 Elm Street, Suite 500  
Dallas, TX 75270

Attn: Mr. Brandon Bammel

**Re: Response to Alleged Observed Emissions at OXY USA WTP Facility in the Permian Basin**

Dear Mr. Bammel:

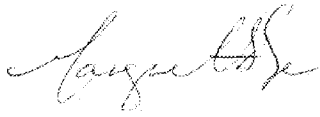
This letter serves as a timely response to the U.S. Environmental Protection Agency's ("EPA") letter dated November 26, 2019 concerning alleged observations of emissions with Optical Gas Imaging helicopter flyovers (the "Letter"). The person to whom the Letter was addressed did not receive the Letter until this Monday, December 9, 2019.

Oxy conducted a review of the site listed in the Letter and identified as "Red Bull State CTB." The name of the site, and latitude and longitude provided are for a non-Oxy, third party site that is located nearly forty seven (47) miles northwest of Oxy's Red Bull CTB facility. Out of an abundance of caution, Oxy also attempted to verify our finding that the listed site is not an Oxy facility by viewing the flyover video with ID Number G8m92 that was provided in the CD attached to the Letter. However, despite several attempts to view the video, the CD appears to be corrupted.

Once again, the coordinates provided for the "Red Bull State CTB" site listed in the Letter are the latitude and longitude for a non-Oxy, third party site that is located nearly forty seven (47) miles from Oxy's Red Bull CTB facility.

If you have any questions or require additional information, please call me at (713) 366-5613 or reach me by email at [margrethe\\_berge@oxy.com](mailto:margrethe_berge@oxy.com).

Sincerely,

A handwritten signature in cursive script, appearing to read 'Margrethe Berge'.

Margrethe Berge  
Environmental Manager



consulting ♦ training ♦ data systems

February 16, 2015

Texas Commission on Environmental Quality (TCEQ)  
Air Permits Initial Review Team (APIRT), MC-161  
12100 Park 35 Circle, Building C, Third Floor  
Austin, Texas 78753-1808

via STEERS (ePermit)

Re: Permit by Rule Registration  
EXCO Operating Company, LP  
Guy Bob FRO A Pad – Frio County, Texas  
Customer Reference Number: CN603405002

APIRT:

On behalf of EXCO Operating Company, LP (EXCO), Zephyr Environmental Corporation (Zephyr) is submitting the attached Permit by Rule (PBR) registration for the Guy Bob FRO A Pad. The site is being registered under 30 TAC §106.352(l) and §106.492. EXCO is not waiting on a response from the TCEQ before implementing this project and understands that electronic notifications may be sent out in lieu of hard copies.

Please contact me at 281.668.7354 ([pwitkowski@zephyrenv.com](mailto:pwitkowski@zephyrenv.com)) if you have any questions or need additional information.

Sincerely,  
**Zephyr Environmental Corporation**

Paul J. Witkowski, P.E.  
Project Manager

Attachment

cc: Mr. George Ortiz, Air Section Manager, TCEQ Region 13 – San Antonio (via mail)  
Mr. Toby Burgin, EXCO, w/attachment via email

**Corporate / Austin**  
2600 Via Fortuna, Suite 450  
Austin, Texas 78746

P: 512.329.5544 F: 512.329.8253

**Houston**  
11200 Westheimer Road, Suite 600  
Houston, Texas 77042

P: 713.977.8787 F: 713.977.8797

[www.ZephyrEnv.com](http://www.ZephyrEnv.com)

**Baltimore**  
10440 Little Patuxent Pkwy, Suite 750  
Columbia, Maryland 21044

P: 410.312.7900 F: 410.312.7901

[www.HazMatAcademy.com](http://www.HazMatAcademy.com)

**Pennsylvania**  
1410 East Market Street  
York, Pennsylvania 17403

P: 717.942.1200 F: 717.427.1296

\*

ED\_005393\_00000660-00001

**PERMIT BY RULE REGISTRATION  
FOR  
EXCO OPERATING COMPANY, LP  
GUY BOB FRO A PAD  
FRIO COUNTY  
CUSTOMER REFERENCE No. CN603405002**

*Submitted To:*

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
AIR PERMITS INITIAL REVIEW TEAM  
MC-161  
P.O. Box 13087  
AUSTIN, TEXAS 78711-3087**

*Submitted For:*

**EXCO OPERATING COMPANY, LP  
12377 MERIT DRIVE, SUITE 1700  
DALLAS, TEXAS 75251-2256**



*Submitted By:*

**ZEPHYR ENVIRONMENTAL CORPORATION  
TEXAS REGISTERED ENGINEERING FIRM F-102  
2600 VIA FORTUNA, SUITE 450  
AUSTIN, TEXAS 78746**

FEBRUARY 2015



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1.1	Introduction
1.2	Previous Authorization
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1.4	Process Description
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## **1.0 PROJECT AND SITE DESCRIPTION**

### **1.1 INTRODUCTION**

EXCO Operating Company, LP (EXCO) owns and operates the Guy Bob FRO A Pad located in Frio County, Texas. The site is a new oil and gas production facility that consists of a high pressure separator, heater treater, low pressure tower, oil/condensate and produced water storage tanks, process flare, and oil/condensate and produced water loadouts.

The purpose of this submittal is to register and certify the site under 30 TAC §106.352(l) and §106.492.

### **1.2 PREVIOUS AUTHORIZATION**

The Guy Bob FRO A Pad is a new site – there are no previous registrations or permits for the site.

### **1.3 LOCATION**

The Guy Bob FRO A Pad is located in Frio County, approximately 15.2 miles west of Pearsall, Texas (see Area Map in Appendix).

- Latitude / Longitude: 28.833258 / -99.336955

### **1.4 PROCESS DESCRIPTION**

The production well's produced liquids are routed through a high pressure separator (FIN: HPS) for initial separation of gas going to the process flare (FIN/EPN: FL-1). The HPS gas will be flared at the process flare until the sales pipeline is operational. Liquids from the separator are routed to the heater treater (FIN/EPN: HT-1) with the oil/condensate then sent to the low pressure tower (FIN: LPT) for further separation. Flash gas from the heater treater is used as fuel in the heater with the remainder routed to the process flare. From the LPT the oil/condensate is sent to the oil storage tanks (TNK-1 through TNK-4). Produced water from the heater treater is sent to the water storage tank (FIN: TNK-5). The oil/condensate and water are loaded to trucks (FIN/EPN: LOAD) for transport to market and disposal, respectively.

Vapors from the heater treater, low pressure tower, oil storage tanks, and produced water storage tank are routed to the process flare (FIN/EPN: FL-1). Truck loading vapors are routed back to the tanks (vapor balanced) for control by the process flare. Other sources of emissions include piping fugitive emissions (FIN/EPN: FUG) and emissions from maintenance, startup, and shutdown activities (FIN/EPN: MSS).

## 2.0 EMISSIONS DATA

### 2.1 EMISSION SOURCES

Emission sources and rates for the Guy Bob FRO A Pad are shown in this section. Emission rates are based on representative gas and liquid analyses (see Section 4.1 Analyses).

Source	FIN	EPN	Calculation Method
Fugitive Emissions	FUG	FUG	TCEQ Fugitive Guidance – O&G Operations
400-bbl Oil/Condensate Tank	TNK-1	FL-1	Liquid Analysis, AP-42, TCEQ Flare Factors
400-bbl Oil/Condensate Tank	TNK-2	FL-1	
400-bbl Oil/Condensate Tank	TNK-3	FL-1	
400-bbl Oil/Condensate Tank	TNK-4	FL-1	
400-bbl Produced Water Tank	TNK-5	FL-1	
Truck Loading (Uncaptured)	LOAD	LOAD	EPA AP-42, TCEQ Guidance Document "Tank Truck Loading of Crude Oil or Condensate" (11/2013)
Truck Loading (Controlled)	LOAD	FL-1	TCEQ Flare Factors, Gas Analysis
Planned MSS	MSS	MSS	EPA AP-42, Ideal Gas Law
Process Flare	FL-1	FL-1	TCEQ Flare Factors, Gas Analysis, Material Balance for SO <sub>2</sub>
0.5 MMBTU/hr Heater Treater 1	HT-1	HT-1	EPA AP-42, Material Balance for SO <sub>2</sub>
Heater Treater	HTR	FL-1	TCEQ Flare Factors, Gas Analysis, Material Balance for SO <sub>2</sub>
Low Pressure Tower	LPT	FL-1	
High Pressure Separator	HPS	FL-1	

### 2.2 TCEQ EMISSIONS SUMMARY TABLE

### 2.3 TCEQ OIL AND GAS GENERAL INFORMATION

### 2.4 EMISSION CALCULATIONS

**EXCO Operating Company, LP**  
**Guy Bob FRO A Pad**  
**Emissions Summary Table**

EPN / Source Name	ESTIMATED EMISSIONS															
	VOC		NOx		CO		PM <sub>10</sub>		PM <sub>2.5</sub>		SO <sub>2</sub>		H <sub>2</sub> S		Formaldehyde	
	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
FUG / Fugitive Emissions	0.236	1.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.000
FL-1 / Oil/Condensate Tank	0.770	0.404	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000
FL-1 / Oil/Condensate Tank	0.770	0.404	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000
FL-1 / Oil/Condensate Tank	0.770	0.404	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000
FL-1 / Produced Water Tank	0.011	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.003	0.000	0.000
LOAD / Truck Loading	8.384	6.953	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.011	0.000	0.000
FL-1 / Truck Loading	0.391	0.324	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000
MSS / Planned MSS	41.645	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.342	0.002	0.000	0.000
FL-1 / Process Flare	0.005	0.024	3.081	9.097	6.151	18.160	0.000	0.000	0.000	0.000	3.291	10.662	0.000	0.000	0.000	0.000
HT-1 / Heater Treater 1	0.003	0.012	0.049	0.215	0.041	0.180	0.004	0.016	0.004	0.016	0.074	0.326	0.000	0.000	0.000	0.000
FL-1 / Heater Treater	0.829	2.140	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.018	0.000	0.000
FL-1 / High-Pressure Separator	2.424	10.616	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.087	0.000	0.000
FL-1 / Low Pressure Tower	0.512	1.515	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.000
<b>TOTAL EMISSIONS:</b>	<b>57.521</b>	<b>24.499</b>	<b>3.130</b>	<b>9.311</b>	<b>6.193</b>	<b>18.341</b>	<b>0.004</b>	<b>0.016</b>	<b>0.004</b>	<b>0.016</b>	<b>3.365</b>	<b>10.988</b>	<b>0.391</b>	<b>0.129</b>	<b>0.000</b>	<b>0.000</b>
<b>MAXIMUM OPERATING SCHEDULE:</b>	<b>Hours/Day</b>	<b>24</b>	<b>Days/Week</b>	<b>7</b>	<b>Weeks/Year</b>	<b>52</b>	<b>Hours/Year</b>	<b>8760</b>								

Note:

Total VOC includes Benzene and Formaldehyde



# Oil and Gas Emissions Spreadsheet

OIL AND GAS FACILITY GENERAL INFORMATION	
Company Name	EXCO Operating Company, LP
Field Name	Eagle Ford
Facility/Well Name	Guy Bob FRO A Pad
Nearest City/Town	Pearsall
API Number/SIC Code	1311
Latitude/Longitude	28.833258 / -99.336955
County	Frio
PI-7, PI-7 CERT, APD- CERT, ePermits?	ePermit
Customer Number (if known)	CN603405002
Regulated Number (if known)	
Natural Gas Site Throughput (MMSCF/day):	0.270
Oil/Condensate Site Average Throughput (bbl/day):	1,350
Produced Water Site Average Throughput (bbl/day):	1,350
Oil/Condensate Site Maximum (bbl/day):	2,000
Produced Water Site Maximum (bbl/day):	2,000
H2S Content of Inlet Gas: (PPMV)	1,000
Is the gas sweet or sour?	Sour
Is this site operational/producing?	No
Has the site been registered before?	No

EQUIPMENT/PROCESSES AT SITE	HOW MANY FOR THIS PROJECT?	HOW MANY FOR THIS REGISTRATION?
ICE Engines	0	0
Turbines	0	0
Diesel Engines	0	0
Heaters-Boilers	1	1
Oil / Condensate Tanks	4	4
Produced Water Tanks	1	1
Miscellaneous Tanks	0	0
Loading Jobs	2	2
Glycol Units	0	0
Amine Units	0	0
Vapor Recovery Units	0	0
Flares-Vapor Combustors	1	1
Thermal Oxidizers	0	0
MSS	1	1

## Fugitives Emission Calculations

EPN	FUG
Name	Fugitive Emissions

Note: Component counts estimated based on 40 CFR 98 Subpart W, Table W-1C counts for Western US Onshore oil production.

Weight Percents From Analyses Tab:			
GAS		LIQUID	
VOC wt %	20.1207	VOC wt %	97.3145
Benzene wt %	0.0341	Benzene wt %	0.2441
H <sub>2</sub> S wt %	0.1577	H <sub>2</sub> S wt %	0.0323

The three parts are set up in this arrangement:

(1)
(2)
(3)

(1)

Gas Service Stream				
Component	Component Count	Emission Factor (lb/hr TOC per component)	TOC Emissions	
			lb/hr	tpy
Valve	23	0.009920	0.228	0.999
Pumps	0	0.005290	0.000	0.000
Connector	39	0.000463	0.018	0.079
Flange	43	0.000860	0.037	0.162
Open-ended Line	0	0.004410	0.000	0.000
Other	1	0.019400	0.019	0.085
Total:			0.303	1.325

Gas Service Emissions			
Pollutant	Wt %	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
VOC	20.1207	0.061	0.267
H <sub>2</sub> S	0.1577	0.000	0.002
Benzene	0.0341	0.000	0.000

(2)

Liquid Service Streams								
Component	Light Oil		Water/Oil		Heavy Oil		TOC Emissions	
	Component Count	Emission Factor (lb/hr TOC per component)	Component Count	Emission Factor (lb/hr TOC per component)	Component Count	Emission Factor (lb/hr TOC per component)	lb/hr	tpy
Valve	19	0.005500	12	0.000216	0	0.0000185	0.107	0.469
Pumps	1	0.028660	1	0.000052	0	0.0011300	0.029	0.126
Connector	29	0.000463	20	0.000243	0	0.0000165	0.018	0.080
Flange	37	0.000243	24	0.000006	0	0.00000086	0.009	0.040
Open-ended Line	0	0.003090	0	0.000550	0	0.0003090	0.000	0.000
Other	1	0.016500	0	0.030900	0	0.0000683	0.017	0.072
Total:							0.180	0.787

Liquid Service Emissions			
Pollutant	Wt %	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
VOC	97.3145	0.175	0.766
H <sub>2</sub> S	0.0323	0.000	0.000
Benzene	0.2441	0.000	0.002

(3)

Total Fugitive Emissions		
Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
THC	0.482	2.113
VOC	0.236	1.033
H <sub>2</sub> S	0.001	0.002

Tank Emissions - AP-42  
Breathing Working Losses From Storage Tanks

Meteorological Data used in Emissions Calculations: San Antonio, Texas (Avg Atmospheric Pressure = 14.33)

FIN	EPN	Tank Identifier	Tank Characteristics				Throughput (gal/year)	Turnovers per year	Basis for VP Calculations	Mixture/Component (Properties used in emission calculations)	Vapor MW	Vapor Pressure (psia) @ Liquid Surface Temperature			Percent Reduction for Produced Water Tank Calc. as Oil/Cond. (%)	Total Uncontrolled HC Emissions	
			Capacity (bbl)	Diameter (ft)	Height (ft)	Paint Color/ Condition						Minimum	Max/Hourly	Avg/Annual		lb/hr	tpy
TNK-1	FL-1	Oil/Condensate Tank	400	12	20	White / Good	5,173,875	307.97	AP-42	Crude oil RVP 5	50	2.62	5.33	3.96	0.00	33.31	2.26
TNK-2	FL-1	Oil/Condensate Tank	400	12	20	White / Good	5,173,875	307.97	AP-42	Crude oil RVP 5	50	2.62	5.33	3.96	0.00	33.31	2.26
TNK-3	FL-1	Oil/Condensate Tank	400	12	20	White / Good	5,173,875	307.97	AP-42	Crude oil RVP 5	50	2.62	5.33	3.96	0.00	33.31	2.26
TNK-4	FL-1	Oil/Condensate Tank	400	12	20	White / Good	5,173,875	307.97	AP-42	Crude oil RVP 5	50	2.62	5.33	3.96	0.00	33.31	2.26
TNK-5	FL-1	Produced Water Tank	400	12	20	White / Good	20,695,500	1231.88	AP-42	Crude oil RVP 5	50	2.62	5.33	3.96	99.00	0.33	0.06

Calculation Method Source: U.S. Environmental Protection Agency. 1995. *Compilation of Air Pollutant Emission Factors*. Vol. 1: Stationary Point and Area Sources. 5th ed. AP-42.  
TCEQ Technical Guidance Package for Chemical Sources: Storage Tanks. TCEQ APD draft document; Dated 2001.

Equations Used:  
 $L_T = L_S + L_W$  [Total Losses From Fixed Roof Tanks (EPA AP-42; Ch. 7.1.3.1)]  
Where:  
 $L_S = 365 V_y W_y K_f K_S$  [Standing Storage Losses From Fixed Roof Tanks. - AP-42. Ch. 7.1.3.1.1; Dated November 2006]  
 $L_W = (0.001)(M_v)(P)(Q)(K_w)(K_p)$  [Average Annual Working Losses From Fixed Roof Tanks. - EPA AP-42: Ch. 7.1.3.1.2; Dated November 2006]  
 $L_{WMAX} = ((L_W)(FR_m))/((TO)(TC_d))$  [Maximum Short-Term Working Losses For Fixed Roof Tanks - TCEQ Technical Guidance Package for Chemical Sources: Storage Tanks; Equation V-1]

Enter any notes here:	Meteorological Data (Average/Annual & Maximum/Short-term Temperatures, Solar Insolation Factor, Atmospheric Pressure) obtained from Tanks 4.0 Database (Version 4.0.9d). Vapor pressures used in emission calculations are based on values from AP-42 Table 7.1-2.
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Tank Emissions - AP-42  
Breathing Working Losses From Storage Tanks

Meteorological Data used in Emissions Calculations: San Antonio, Texas (Avg Atmospheric Pressure = 14.33)

FIN	Tank Identifier	Tank Vapor VOC wt%	Tank Vapor Benzene wt%	Tank Vapor H <sub>2</sub> S wt%	Uncontrolled Emissions						VOC Control Efficiency including Effects of Capture Efficiency (%)	H <sub>2</sub> S Control Efficiency including Effects of Capture Efficiency (%)	Control Device	Controlled Emissions						
					VOC (lb/hr)	VOC (tpy)	Benzene (lb/hr)	Benzene (tpy)	H <sub>2</sub> S (lb/hr)	H <sub>2</sub> S (tpy)				VOC (lb/hr)	VOC (tpy)	Benzene (lb/hr)	Benzene (tpy)	H <sub>2</sub> S (lb/hr)	H <sub>2</sub> S (tpy)	
TNK-1	Oil/Condensate Tank	97.31	0.24	0.16	32.416	2.200	0.081	0.006	0.053	0.004	98.00	98.00	Flare	0.648	0.044	0.002	0.000	0.001	0.000	
TNK-2	Oil/Condensate Tank	97.31	0.24	0.16	32.416	2.200	0.081	0.006	0.053	0.004	98.00	98.00	Flare	0.648	0.044	0.002	0.000	0.001	0.000	
TNK-3	Oil/Condensate Tank	97.31	0.24	0.16	32.416	2.200	0.081	0.006	0.053	0.004	98.00	98.00	Flare	0.648	0.044	0.002	0.000	0.001	0.000	
TNK-4	Oil/Condensate Tank	97.31	0.24	0.16	32.416	2.200	0.081	0.006	0.053	0.004	98.00	98.00	Flare	0.648	0.044	0.002	0.000	0.001	0.000	
TNK-5	Produced Water Tank	97.31	0.24	0.16	0.324	0.058	0.001	0.000	0.053	0.009	98.00	98.00	Flare	0.006	0.001	0.000	0.000	0.001	0.000	
					129.986	8.859	0.326	0.022	0.263	0.024				Totals:	2.600	0.177	0.007	4.44E-4	0.005	4.74E-4

Calculation Method Sources: U.S. Environmental Protection Agency, 1995. *Compilation of Air Pollutant Emission Factors, Vol. 1: Stationary Point and Area Sources, 5th ed. AP-42.* Page 2 of 2  
TCEQ Technical Guidance Package for Chemical Sources: Storage Tanks. TCEQ APD draft document, Dated 2001.

Equations Used:  
 $L_T = L_S + L_W$  [Total Losses From Fixed Roof Tanks (EPA AP-42; Ch. 7.1.3.1)]  
Where:  
 $L_S = 365 V_v W_v K_f K_s$  [Standing Storage Losses From Fixed Roof Tanks. - AP-42, Ch. 7.1.3.1.1; Dated November 2006]  
 $L_W = (0.001)(M_v)(P)(Q)(K_w)(K_p)$  [Average Annual Working Losses From Fixed Roof Tanks. - EPA AP-42; Ch. 7.1.3.1.2; Dated November 2006]  
 $L_{WMAXI} = ((L_W)(FR_m))/((TO)(TC_d))$  [Maximum Short-Term Working Losses For Fixed Roof Tanks - TCEQ Technical Guidance Package for Chemical Sources: Storage Tanks; Equation V-1]

Enter any notes here:	Meteorological Data (Average/Annual & Maximum/Short-term Temperatures, Solar Insolation Factor, Atmospheric Pressure) obtained from Tanks 4.0 Database (Version 4.0.9d). Vapor pressures used in emission calculations are based on values from AP-42 Table 7.1-2.
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Tank Emissions - Flash Losses From Storage Tanks  
Vasquez-Beggs Method

FIN	EPN	Tank Identifier	Tank Contents	GOR (scf of flash gas/bbl)	Barrels per day, Annual Average (bbl/day)	Barrels per day, Maximum (bbl/day)	Flash Gas Molecular Weight	Percent Reduction for Produced Water Tank Calc. as Oil/Cond. (%)	Total Uncontrolled HC Emissions		Flash Gas VOC wt%	Flash Gas Benzene wt%	Flash Gas H <sub>2</sub> S wt%
									lb/hr	tpy			
TNK-1	FL-1	Oil/Condensate Tank	Oil/Condensate	2.220	337.500	500.000	50.000	0.00	6.261	18.512	97.31	0.24	0.16
TNK-2	FL-1	Oil/Condensate Tank	Oil/Condensate	2.220	337.500	500.000	50.000	0.00	6.261	18.512	97.31	0.24	0.16
TNK-3	FL-1	Oil/Condensate Tank	Oil/Condensate	2.220	337.500	500.000	50.000	0.00	6.261	18.512	97.31	0.24	0.16
TNK-4	FL-1	Oil/Condensate Tank	Oil/Condensate	2.220	337.500	500.000	50.000	0.00	6.261	18.512	97.31	0.24	0.16
TNK-5	FL-1	Produced Water Tank	Produced Water	0.022	1350.000	2000.000	50.000	99.00	0.250	0.740	97.31	0.24	0.16
Totals:									25.296	74.787			

Enter any notes here:

## Tank Emissions - Flash Losses From Storage Tanks

Vasquez-Beggs Method

FIN	EPN	Tank Identifier	Tank Contents	Uncontrolled Emissions						VOC Control Efficiency including Effects of Capture Efficiency (%)	H2S Control Efficiency including Effects of Capture Efficiency (%)	Controlled Emissions					
				VOC (lb/hr)	VOC (tpy)	Benzene (lb/hr)	Benzene (tpy)	H <sub>2</sub> S (lb/hr)	H <sub>2</sub> S (tpy)			VOC (lb/hr)	VOC (tpy)	Benzene (lb/hr)	Benzene (tpy)	H <sub>2</sub> S (lb/hr)	H <sub>2</sub> S (tpy)
TNK-1	FL-1	Oil/Condensate Tank	Oil/Condensate	6.093	18.014	0.015	0.045	0.010	0.029	98.00	98.00	0.122	0.360	0.000	0.001	0.000	0.001
TNK-2	FL-1	Oil/Condensate Tank	Oil/Condensate	6.093	18.014	0.015	0.045	0.010	0.029	98.00	98.00	0.122	0.360	0.000	0.001	0.000	0.001
TNK-3	FL-1	Oil/Condensate Tank	Oil/Condensate	6.093	18.014	0.015	0.045	0.010	0.029	98.00	98.00	0.122	0.360	0.000	0.001	0.000	0.001
TNK-4	FL-1	Oil/Condensate Tank	Oil/Condensate	6.093	18.014	0.015	0.045	0.010	0.029	98.00	98.00	0.122	0.360	0.000	0.001	0.000	0.001
TNK-5	FL-1	Produced Water Tank	Produced Water	0.244	0.721	0.001	0.002	0.039	0.117	98.00	98.00	0.005	0.014	0.000	0.000	0.001	0.002
Totals:				24.616	72.778	0.062	0.182	0.079	0.234	Totals:		0.492	1.456	0.001	0.004	0.002	0.005

Enter any notes here:	
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## Flashing Emissions - Vasquez-Beggs Method

A) There are constraints on the variable ranges as shown here. If a variable is outside of the range, use a different method.

B) The following equations are used for this method:

$SGx = \text{Dissolved gas gravity at 100 psig} = SGi [1.0 + 0.00005912 \cdot API \cdot Ti \cdot \log(Pi/114.7)]$

$Rs = (C1 \cdot SGx \cdot Pi^{C2}) \exp((C3 \cdot API) / (Ti + 460))$

$THC = Rs \cdot Q \cdot MW \cdot 1/385 \text{ scf/lb-mole} \cdot 365 \text{ D/Yr} \cdot 1 \text{ ton/2000 lbs}$

$VOC = THC \cdot \text{Frac. of C3+ in the Stock Tank Vapor}$

C) The constants C1, C2, and C3 vary as shown below based on the API gravity, specifically if the API gravity is less than 30° or if the API gravity is equal to or greater than 30°.

	API < 30	API ≥ 30
C1	0.0362	0.0178
C2	1.0937	1.187
C3	25.724	23.931

Acceptable Variable Ranges			
40	> API >	16	°API
5250	> P + P <sub>atm</sub> >	50	(psia)
295	> Ti >	70	(°F)
1.18	> SGi >	0.56	(MW/28.97)
125	> MW >	18	(lb/lb-mole)
1	> VOC >	0.50	fraction

VASQUEZ-BEGGS GAS OIL RATIO CORRELATION (FOR ESTIMATING FLASH LOSSES)										FLASH FACTOR (Used in Flashing Losses Calculation)				
Flash Source	Stock Tank API Gravity	Flash Source Pressure (psig)	Flash Source Temperature (°F)	Flash Source Gas Gravity at Initial Condition	Stock Tank Gas Molecular Weight	VOC (C3+) Fraction of Stock Tank Gas	Atmospheric Pressure (psia)	Calculated		Rs (scf <sub>voc</sub> /bbl) @ Source Conditions	Rs (scf <sub>voc</sub> /bbl) @ Downstream Conditions	FIN	Δ ([1] - [2]) Flash Factor (scf <sub>voc</sub> /bbl) @ FIN	
	API	P	Ti	SGi	MW		Patm	SGx	Rs					
									scf <sub>voc</sub> /bbl					lb <sub>voc</sub> /bbl
HT to atm	39.8	150	120	0.7459	50.00	97.31%	14.7	0.78	29.82	3.87	29.82	4.59	HT	25.23
LPT to atm	39.8	25	120	0.7459	50.00	97.31%	14.7	0.65	4.59	0.60	4.59	2.22	LPT	2.37
TANKS to atm	39.8	5	80	0.7459	50.00	97.31%	14.7	0.64	2.22	0.29	2.22		TANKS	2.22

## Heaters-Boilers Emissions

Heater and Boiler Emission Calculations (fueled by natural gas)																																							
EPN	HT-1																																						
Name	Heater Treater 1																																						
Heater/Boiler rating (MMBtu/hr):	0.500																																						
Rating above is (select from list):	below 100 MMBtu/hr, uncontrolled	(assume uncontrolled, unless specifically stated otherwise)																																					
Operating hours/year:	8760																																						
Fuel Heat Value (Btu/SCF):	1,138																																						
<table border="1"> <thead> <tr> <th>Pollutant</th> <th>Emission Factor (lb/MMBtu)<sup>[1]</sup></th> <th>lb/hr</th> <th>tpy</th> </tr> </thead> <tbody> <tr> <td>VOC</td> <td>0.005</td> <td>0.003</td> <td>0.012</td> </tr> <tr> <td>NOx</td> <td>0.098</td> <td>0.049</td> <td>0.215</td> </tr> <tr> <td>CO</td> <td>0.082</td> <td>0.041</td> <td>0.180</td> </tr> <tr> <td>PM total</td> <td>0.007</td> <td>0.004</td> <td>0.016</td> </tr> <tr> <td>PM condensable</td> <td>0.006</td> <td>0.003</td> <td>0.012</td> </tr> <tr> <td>PM filterable</td> <td>0.002</td> <td>0.001</td> <td>0.004</td> </tr> <tr> <td>SO<sub>2</sub></td> <td>0.001</td> <td>0.000</td> <td>0.001</td> </tr> <tr> <td>Benzene</td> <td>2.06E-06</td> <td>0.000</td> <td>0.000</td> </tr> </tbody> </table>				Pollutant	Emission Factor (lb/MMBtu) <sup>[1]</sup>	lb/hr	tpy	VOC	0.005	0.003	0.012	NOx	0.098	0.049	0.215	CO	0.082	0.041	0.180	PM total	0.007	0.004	0.016	PM condensable	0.006	0.003	0.012	PM filterable	0.002	0.001	0.004	SO <sub>2</sub>	0.001	0.000	0.001	Benzene	2.06E-06	0.000	0.000
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If the heater/boiler is fueled by Sour Gas, cannot use emission factors above to calculate SO <sub>2</sub> emissions, must use SO <sub>2</sub> mass balance:																																							
<table border="1"> <thead> <tr> <th colspan="2">SO<sub>2</sub> Mass Balance calculation:</th> <th colspan="2">assumptions:</th> </tr> </thead> <tbody> <tr> <td>Fuel H<sub>2</sub>S content (mol %) =</td> <td>0.1000</td> <td>SO<sub>2</sub> MW</td> <td>64.06 lb/lb-mole</td> </tr> <tr> <td>SO<sub>2</sub> produced (lb/hr) =</td> <td>0.0743</td> <td>Ideal Gas Law</td> <td>378.61 SCF/lb-mole</td> </tr> <tr> <td>SO<sub>2</sub> produced (tpy) =</td> <td>0.3256</td> <td></td> <td></td> </tr> </tbody> </table>				SO <sub>2</sub> Mass Balance calculation:		assumptions:		Fuel H <sub>2</sub> S content (mol %) =	0.1000	SO <sub>2</sub> MW	64.06 lb/lb-mole	SO <sub>2</sub> produced (lb/hr) =	0.0743	Ideal Gas Law	378.61 SCF/lb-mole	SO <sub>2</sub> produced (tpy) =	0.3256																						
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Enter any notes here:		[1]: Emission Factors from AP-42, Chapter 1, Tables 1.4-1 and 1.4-2. Modified from lb/MMCF to lb/Mmbtu by dividing by 1020 MMBtu/ MMCF (per AP-42 guidance).																																					

## Loading Emissions

FIN	LOAD	EPN	FL-1
Identifier	Truck Loading		
Control Device	Flare		

### Truck Hourly Loading Emission Calculations

Using equation  $L_L = 12.46 \cdot \text{SPM}/T$  from AP-42, Chapter 5, Section 5.2-4

S =	0.60	Saturation Factor
P =	5.33	True vapor pressure of liquid loaded (psia)
M =	50.00	Molecular Weight of Vapors (lb/lb-mole)
T =	554.97	Temperature of bulk liquid loaded (in degrees Rankine)
Hourly Loading Rate	8,000	Gallons Loaded per Hour
$L_L$ =	3.59	Loading Loss (lb HC released/1000 gal liquid loaded)
	28.72	HC Uncontrolled Emissions (lb/hr)
Vapor Weight Percents		
VOC	97.31	Tank Vapor VOC wt%
benzene	0.24	Tank Vapor Benzene wt%
H <sub>2</sub> S	0.16	Tank Vapor H <sub>2</sub> S wt%
Produced Water Reduction		
	0.00	Percent Reduction for Produced Water Tank Calc. as Oil/Cond. (%)
Uncontrolled Emissions		
VOC	27.947	Emissions Uncontrolled VOC (lb/hr)
Benzene	0.070	Emissions Uncontrolled Benzene (lb/hr)
H <sub>2</sub> S	0.045	Emissions Uncontrolled H <sub>2</sub> S (lb/hr)
Collection Efficiency*		
	70.00	Oil/Condensate Collection Efficiency (%)
	70.00	Produced Water Collection Efficiency (%)
Vapors Uncaptured by Control Device (EPN: LOAD)		
VOC	8.384	VOC Uncaptured Vapors (lb/hr)
Benzene	0.021	benzene Uncaptured Vapors (lb/hr)
H <sub>2</sub> S	0.014	H <sub>2</sub> S Uncaptured Vapors (lb/hr)
Control Efficiency		
VOC	98.00	VOC Control Efficiency (%)
H <sub>2</sub> S	98.00	H <sub>2</sub> S Control Efficiency (%)
Vapors Uncontrolled by Control Device (Controlled Emissions at EPN: FL-1)		
VOC	0.391	VOC Results (lb/hr)
Benzene	0.001	Benzene Results (lb/hr)
H <sub>2</sub> S	0.001	H <sub>2</sub> S Results (lb/hr)

Enter any notes here:

As a conservative estimate, maximum hourly emission rates are based on oil loading rate. No reduction for produced water was taken.

\*TCEQ Guidance Document "Tank Truck Loading of Crude Oil or Condensate" (08/2013)

## Loading Emissions

FIN	LOAD	EPN	FL-1
Identifier	Truck Loading		
Control Device	Flare		

### Truck Annual Loading Emission Calculations

Using equation  $L_L = 12.46 \cdot SPM/T$  from AP-42, Chapter 5, Section 5.2-4

S =	0.60	Saturation Factor
P =	3.22	True vapor pressure of liquid loaded (psia)
M =	50.00	Molecular Weight of Vapors (lb/lb-mole)
T =	528.29	Temperature of bulk liquid loaded (in degrees Rankine)
Annual Loading Rate	20,695,500	Gallons Oil/Condensate Loaded per Year
Annual Loading Rate	20,695,500	Gallons Produced Water Loaded per Year
$L_L$ =	2.28	Loading Loss (lb HC released/1000 gal liquid loaded)
	23.58	HC Uncontrolled Emissions from Oil/Condensate (ton/yr)
	0.24	HC Uncontrolled Emissions from Produced Water (ton/yr)
Tank Vapor Weight Percents		
VOC	97.31	Tank Vapor VOC wt%
Benzene	0.24	Tank Vapor Benzene wt%
H <sub>2</sub> S	0.16	Tank Vapor H <sub>2</sub> S wt%
Produced Water Reduction		
	99.00	Percent Reduction for Produced Water Tank Calc. as Oil/Cond. (%)
Uncontrolled Emissions		
VOC	23.177	Emissions Uncontrolled VOC (ton/yr)
Benzene	0.058	Emissions Uncontrolled Benzene (ton/yr)
H <sub>2</sub> S	0.074	Emissions Uncontrolled H <sub>2</sub> S (ton/yr)
Collection Efficiency*		
	70.00	Oil/Condensate Collection Efficiency (%)
	70.00	Produced Water Collection Efficiency (%)
Vapors Uncaptured by Control Device (EPN: LOAD)		
VOC	6.953	VOC Uncaptured Vapors (ton/yr)
Benzene	0.017	benzene Uncaptured Vapors (ton/yr)
H <sub>2</sub> S	0.011	H <sub>2</sub> S Uncaptured Vapors (ton/yr)
Control Efficiency		
VOC	98.00	VOC Control Efficiency (%)
H <sub>2</sub> S	98.00	H <sub>2</sub> S Control Efficiency (%)
Vapors Uncontrolled by Control Device (Controlled Emissions at EPN: FL-1)		
VOC	0.324	VOC Results (ton/yr)
Benzene	0.001	Benzene Results (ton/yr)
H <sub>2</sub> S	0.001	H <sub>2</sub> S Results (ton/yr)

Enter any notes here:

Annual loading emissions reflects the combined throughput of 100% oil/condensate throughput + 1% of produced water throughput.

\*TCEQ Guidance Document "Tank Truck Loading of Crude Oil or Condensate" (08/2013)

Loading Emissions		
Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
VOC	8.775	7.278
benzene	0.022	0.018
H <sub>2</sub> S	0.014	0.013

## Flare / Vapor Combustor Emissions

EPN:	FL-1
Identifier:	Process Flare

Note:	
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### Incoming Streams Routed to Flare (EPN: FL-1)

Description	FIN	Routed to Flare/ VC?	Hours/year Routed to Flare/VC	GOR (scf/bbl)	Stream MW	Max Flow Rate (scf/hr)	Annual Flow Rate (scf/yr)	Heating Value	Heat Release		Uncontrolled Total Stream Flow		Stream Composition (Weight %)					
								BTU/scf	MMBTU/hr	MMBTU/yr	lb/hr	tpy	VOC	H2S	Benzen			
Tanks (B/W)	TNK-1 - TNK-5	Yes	8760		50.00	1029.59	140,344	5343.09	5.50	749.87	133.573	9.104						
Tanks (Flash)	TNK-1 - TNK-5	Yes	8760		50.00	194.98	1,152,924	5343.09	1.04	6160.17	25.296	74.787						
Truck Loading	LOAD	Yes	8760		50.00	154.95	257,012	5343.09	0.83	1373.24	20.103	16.672						
Flare Pilot	FL-1	Yes	8760		21.61	25.00	219,000	1138.16	0.03	249.26	1.402	6.140				19.21	0.16	0.03
Heater Treater	HTR	Yes	8760		50.00	1663.53	8,585,775	1138.16	1.89	9772.01	215.817	556.933				19.21	0.16	0.03
High-Pressure Separator	HPS	Yes	8760	2.43	21.61	11250.00	98,550,000	1138.16	12.80	112166.00	630.796	2762.885	19.21	0.16	0.03			
Low Pressure Tower	LPT	Yes	8760		50.00	202.88	1,199,646	1138.16	0.23	1365.39	26.321	77.817	97.31	0.16	0.24			
TOTAL					24.53	14,521	110,104,700	1,538	22.33	131835.95	1053.31	3504.34						

### TCEQ Flare Emission Factors - Technical Guidance for Chemical Sources: Flares & Vapor Oxidizers, October 2000.

Flare Type	Waste Gas	NOX (lb/MMBTU)	CO (lb/MMBTU)
steam-assist	high Btu (>1000 BTU/scf)	0.0485	0.3503
	low Btu (192-1000 BTU/scf)	0.068	0.3465
other	high Btu (>1000 BTU/scf)	0.138	0.2755
	low Btu (192-1000 BTU/scf)	0.0641	0.5496

#### Calculation Method:

- Total Stream (lb/hr) = (lb/lb-mol) \* (P) \* (scf/hr) \* (R) \* (T)
- NOX/CO (lb/hr) = (scf/hr)\*EF (lb/MMBTU)\*(1 MMBTU/1,000,000 BTU)\* Heating Value (BTU/scf)
- SO2 (lb/hr) = (H2S lb/hr)\*(64 lb SO2/lb-mol)/(34.08 lb H2S/lb-mol)
- Flow Rate (scf/hr) = Total lb/hr \* T \* R / P \* Stream MW
- Flow Rate (scf/hr) = GOR \* Max Production (bbl/day)

### Flare Information (If Controlled by Flare)

Flare Steam Assisted (y or n)	No
Pilot or Auto-ignitor?	Pilot
Pilot Flow (scf/hr):	25.00
Stack height (ft):	20
Flare Tip Diameter (in):	2
C1-C3 Destruction Efficiency (%):	98
C4+ Destruction Efficiency (%):	98
H2S Conversion Efficiency (%):	98

#### Constants

- 528 T (absolute temperature - Rankin)
- 10.73 R (universal gas constant) - (psia\*ft<sup>3</sup>)/(lbmolR)
- 14.7 P (Pressure (psia))

## Emission Calculations

Description	FIN	VOC Emissions				H2S Emissions				Benzene Emissions				NOx Emissions		CO Emissions		SO2 Emissions	
		Uncontrolled		Controlled		Uncontrolled		Controlled		Uncontrolled		Controlled		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy						
Tanks (B/W)	TNK-1 - TNK-5	129.986	8.859	2.600	0.177	0.263	0.024	0.005	0.000	0.326	0.022	0.007	0.000	0.759	0.052	1.516	0.103	0.493	0.044
Tanks (Flash)	TNK-1 - TNK-5	24.616	72.778	0.492	1.456	0.079	0.234	0.002	0.005	0.062	0.182	0.001	0.004	0.144	0.425	0.287	0.849	0.148	0.439
Truck Loading	LOAD	19.563	16.224	0.391	0.324	0.032	0.052	0.001	0.001	0.049	0.041	0.001	0.001	0.114	0.095	0.228	0.189	0.060	0.098
Flare Pilot	FL-1	0.269	1.180	0.005	0.024	0.002	0.010	0.000	0.000	0.000	0.002	0.000	0.000	0.004	0.017	0.008	0.034	0.004	0.018
Heater Treater	HTR	41.464	107.001	0.829	2.140	0.340	0.878	0.007	0.018	0.070	0.181	0.001	0.004	0.261	0.674	0.522	1.346	0.639	1.650
High-Pressure Separator	HPS	121.192	530.820	2.424	10.616	0.995	4.357	0.020	0.087	0.205	0.899	0.004	0.018	1.767	7.739	3.528	15.451	1.868	8.183
Low Pressure Tower	LPT	25.614	75.728	0.512	1.515	0.042	0.123	0.001	0.002	0.064	0.190	0.001	0.004	0.032	0.094	0.064	0.188	0.078	0.230
TOTAL		362.704	812.589	7.254	16.252	1.752	5.678	0.035	0.114	0.777	1.517	0.016	0.030	3.081	9.097	6.151	18.160	3.291	10.662

#### Actual Flare Tip Velocity

Calculation Method: Actual Flare Tip Velocity (ft/sec) = (scf/hr)\*(1 hr/3600 sec)/(flare tip area)

Total Gas Volume to Flare (scf/hr):	14,521
Flare Tip Diameter (ft)	0.166667
Flare Tip Area (ft <sup>2</sup> )	0.087
Flare Tip Velocity (ft/sec):	46.222

#### Heat Content Requirement per 30 TAC §106.492(1)(D)

Calculation Method: For SO2, Q = (0.53)\*(10<sup>5</sup>)\*(lb/hr SO2)

SO2 Emission Rate (lb/hr)	3.29
Heat Release of Flare (BTU/hr):	22,328,016
Q (BTU/hr):	174,410
Is §106.492(1)(D) requirement met?	YES

## Planned MSS Emissions

FIN	MSS	EPN	MSS
-----	-----	-----	-----

### VENTING EMISSION CALCULATION (for blowdowns, starter vents, gas operated controllers, etc):

Venting Volume per Event (SCF/event):	3865.00	(standard cubic feet)
Number of hours per event:	1	
Number of events per year:	12	
Venting Gas Molecular Weight	21.6099	
VOC wt %	19.2125	
benzene wt%	0.0325	
H <sub>2</sub> S wt%	0.1577	
VOC Control Efficiency (%)	0.00	
H <sub>2</sub> S Control Efficiency (%)	0.00	

#### Constant:

385.33 scf/lb-mol

Gas Wt % From Analyses Tab:

VOC wt %	19.2125
Benzene wt %	0.0325
H <sub>2</sub> S wt %	0.1577

Uncontrolled Emissions	lb/hr	tpy
Total HC Emissions:	216.7578	1.3005
VOC Emissions:	41.6446	0.2499
Benzene Emissions:	0.0705	0.0004
H <sub>2</sub> S Emissions:	0.3419	0.0021

Controlled Emissions	lb/hr	tpy
Total HC Emissions:	216.7578	1.3005
VOC Emissions:	41.6446	0.2499
Benzene Emissions:	0.0705	0.0004
H <sub>2</sub> S Emissions:	0.3419	0.0021

Enter any notes here:

### 3.0 REQUIREMENTS AND APPLICABILITY

#### 3.1 STATE REQUIREMENTS AND APPLICABILITY

This section presents a review of the state air quality regulations that apply to operations as of February 2015 at the Guy Bob FRO A Pad.

##### 30 TAC Chapter 101 – General Air Quality Rules

Section	Rule	Applicability
§101.10	Emissions Inventory Requirements	<i>This site is not a major source of emissions and is not located in an ozone nonattainment area. Therefore, this site does not have any requirements under this rule.</i>
§101.201	Emission Event Reporting and Recordkeeping Requirements	<i>EXCO will report emissions events exceeding the reportable quantities defined in this chapter, should they occur. Records of emissions events will be maintained.</i>
§101.211	Scheduled Maintenance, Startup, and Shutdown Reporting and Recordkeeping Requirements	<i>EXCO will report any unauthorized maintenance, startup, and shutdown activity that is expected to cause emissions in excess of the reportable quantities defined in this chapter.</i>

##### 30 TAC Chapter 106 – Permits By Rule

Section	Rule	Applicability
§106.352	Oil and Gas Handling and Production Facilities	<i>The site is an oil and gas production facility, not located in a Barnett Shale county, consisting of a separator, heater, storage tanks, and flare. The site handles sour gas and is located at least ¼ mile from any receptor. Total emissions of sulfur compounds, excluding SO<sub>x</sub>, from all vents do not exceed 4 lb/hr. This registration demonstrates compliance with the provisions of this rule.</i>
§106.4	Requirements for Permitting by Rule	<i>Based on the potential to emit (PTE) emission rates, this site qualifies for permit by rule. The total PTE emissions from all sources do not exceed 25 tpy VOC, SO<sub>2</sub>, or PM, or 250 tpy NO<sub>x</sub> or CO.</i>

PERMIT BY RULE REGISTRATION  
EXCO OPERATING COMPANY, LP – GUY BOB FRO A PAD

Section	Rule	Applicability
§106.492	Requirements for Permitting by Rule	<i>The flare at this site is a smokeless gas flare which meets the design requirements and operational conditions outlined in this subchapter.</i>

### 30 TAC Chapter 111 – Control of Air Pollution from Visible Emissions and Particulate Matter

The combustion emission source(s) at this site are not a major source of particulate matter and it is unlikely that they will generate visible stack emissions under normal operating conditions. However, they are subject to the provisions of this chapter.

Section	Rule	Applicability
§111.111 (a)(1)(B)	Visible Emissions and Particulate Matter - Requirements for Specified Sources	<i>The stationary vents of applicable combustion sources at this site will not exceed the opacity limit of 20% averaged over a six-minute period.</i>
§111.111 (a)(4)	Visible Emissions and Particulate Matter - Requirements for Specified Sources	<i>Visible emissions from the gas flare will not exceed 5 minutes in any 2-hour period, except as provided in 101.11(a). EXCO will record daily observations of whether or not the flare was smoking.</i>
§111.151	Emission Limits on Nonagricultural Processes - Allowable Emission Limits	<i>Sources of particulate matter at this site are below the allowable rates specified in Table 1 for the given stack height.</i>

### 30 TAC Chapter 112 – Control of Air Pollution from Sulfur Compounds

Section	Rule	Applicability
§112.3(a)	Control of Sulfur Dioxide – Net Ground Level Concentrations	<i>Emission sources of SO<sub>2</sub> operated at this site shall not exceed a net ground level concentration of 0.4 ppmv averaged over any 30-minute period.</i>
§112.31	Control of Hydrogen Sulfide – Allowable Emissions	<i>Emission sources of H<sub>2</sub>S operated at this site shall not exceed a net ground level concentration of 0.08 ppm averaged over any 30-minute period if the downwind concentration of H<sub>2</sub>S affects a property used for residential, business, or commercial purposes.</i>

PERMIT BY RULE REGISTRATION  
EXCO OPERATING COMPANY, LP – GUY BOB FRO A PAD

Section	Rule	Applicability
§112.32	Control of Hydrogen Sulfide – Allowable Emissions – Other Property	<i>Emission sources of H<sub>2</sub>S operated at this site shall not exceed a net ground level concentration of 0.12 ppm averaged over any 30-minute period if the downwind concentration of H<sub>2</sub>S affects only property used for other than residential, recreational, business, or commercial purposes.</i>

### **30 TAC Chapter 115 – Control of Air Pollution from Volatile Organic Compounds**

The site is located in Frio County, which is not currently subject to the provisions of this chapter.

### **30 TAC Chapter 117 – Control of Air Pollution from Nitrogen Compounds**

The site is located in Frio County, which is not currently subject to the provisions of this chapter.

### **30 TAC Chapter 122 – Federal Operating Permits Program**

The site is not a major source as defined in 122.10 of this title.

## **3.2 PBR APPLICABILITY CHECKLISTS**



**Texas Commission on Environmental Quality**  
**Permit by Rule Applicability Checklist**  
**Title 30 Texas Administrative Code § 106.4**

The following checklist was developed by the Texas Commission on Environmental Quality (TCEQ), **Air Permits Division**, to assist applicants in determining whether or not a facility meets all of the applicable requirements. Before claiming a specific Permit by Rule (PBR), a facility must first meet all of the requirements of **Title 30 Texas Administrative Code § 106.4 (30 TAC § 106.4)**, "Requirements for Permitting by Rule." Only then can the applicant proceed with addressing requirements of the specific Permit by Rule being claimed.

The use of this checklist is not mandatory; however, it is the responsibility of each applicant to show how a facility being claimed under a PBR meets the general requirements of 30 TAC § 106.4 and also the specific requirements of the PBR being claimed. If all PBR requirements cannot be met, a facility will not be allowed to operate under the PBR and an application for a construction permit may be required under 30 TAC § 116.110(a).

Registration of a facility under a PBR can be performed by completing **Form PI-7** (Registration for Permits by Rule) or **Form PI-7-CERT** (Certification and Registration for Permits by Rule). The appropriate checklist should accompany the registration form. Check the most appropriate answer and include any additional information in the spaces provided. If additional space is needed, please include an extra page and reference the question number. The PBR forms, tables, checklists, and guidance documents are available from the TCEQ, Air Permits Division Web site at: [www.tceq.texas.gov/permitting/air/nav/air\\_pbr.html](http://www.tceq.texas.gov/permitting/air/nav/air_pbr.html).

<b>I. 30 TAC § 106.4(a)(1) &amp; (4): Emission limits</b>	
List emissions in tpy for each facility (add additional pages or tabl	See included emissions summary table
• Are the SO <sub>2</sub> , PM <sub>10</sub> , VOC, or other air contaminant emissions claimed for <b>each</b> facility in this PBR submittal less than 25 tpy?	<input type="checkbox"/> YES <input type="checkbox"/> NO
• Are the NO <sub>x</sub> and CO emissions claimed for each facility in this PBR submittal less than 250 tpy?	<input type="checkbox"/> YES <input type="checkbox"/> NO
<i>If the answer to both is "Yes," continue to the question below. If the answer to either question is "No," a PBR cannot be claimed.</i>	
Has any facility at the property had public notice and opportunity for comment under 30 TAC Section 116 for a regular permit or permit renewal? (This does not include public notice for voluntary emission reduction permits, grandfathered existing facility permits, or federal operating permits.)	<input type="checkbox"/> YES <input type="checkbox"/> NO
<i>If "Yes," skip to Section 2. If "No," continue to the questions below.</i>	
If the site has had no public notice, please answer the following:	
• Are the SO <sub>2</sub> , PM <sub>10</sub> , VOC, or other emissions claimed for <b>all</b> facilities in this PBR submittal less than 25 tpy?	<input type="checkbox"/> YES <input type="checkbox"/> NO
• Are the NO <sub>x</sub> and CO emissions claimed for all facilities in this PBR submittal less than 250 tpy?	<input type="checkbox"/> YES <input type="checkbox"/> NO
<i>If the answer to both questions is "Yes," continue to Section 2.</i>	
<i>If the answer to either question is "No," a PBR cannot be claimed. A permit will be required under Chapter 116.</i>	



**Texas Commission on Environmental Quality**  
**Permit by Rule Applicability Checklist**  
**Title 30 Texas Administrative Code § 106.4**

<b>2. 30 TAC § 106.4(a)(2): Nonattainment check</b>	
<ul style="list-style-type: none"> <li>Are the facilities to be claimed under this PBR located in a designated ozone nonattainment county?</li> </ul>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<i>If "Yes," please indicate which county by checking the appropriate box to the right.</i>	
(Marginal)- Hardin, Jefferson, and Orange counties (BPA)	<input type="checkbox"/> BPA
(Moderate)- Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller counties (HGA)	<input type="checkbox"/> HGA
(Moderate)- Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant counties (DFW)	<input type="checkbox"/> DFW
<i>If "Yes," to any of the above, continue to the next question. If "No," continue to Section 3.</i>	
<ul style="list-style-type: none"> <li>Does this project trigger a nonattainment review?</li> </ul>	<input type="checkbox"/> YES <input type="checkbox"/> NO
Does this project trigger a nonattainment review?	
<ul style="list-style-type: none"> <li>Is the project's potential to emit (PTE) for emissions of VOC or NOx increasing by 100 tpy or more?  <i>PTE is the maximum capacity of a stationary source to emit any air pollutant under its worst-case physical and operational design unless limited by a permit, rule, or made federally enforceable by a certification.</i> </li> </ul>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<ul style="list-style-type: none"> <li>Is the site an existing major nonattainment site and are the emissions of VOC or NOx increasing by 40 tpy or more?</li> </ul>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<i>If needed, attach contemporaneous netting calculations per nonattainment guidance.</i>	
Additional information can be found at: <a href="http://www.tceq.state.tx.us/permitting/air/forms/newsource/review/tables/nsr_table8.html">www.tceq.state.tx.us/permitting/air/forms/newsource/review/tables/nsr_table8.html</a> and <a href="http://www.tceq.state.tx.us/permitting/air/nav/air_docs_newsource.html">www.tceq.state.tx.us/permitting/air/nav/air_docs_newsource.html</a>	
<i>If "Yes," to any of the above, the project is a major source or a major modification and <b>a PBR may not be used</b>. A Nonattainment Permit review must be completed to authorize this project. If "No," continue to Section 3.</i>	
<b>3. 30 TAC § 106.4(a)(3): Prevention of Significant Deterioration (PSD) check</b>	
Does this project trigger a review under PSD rules?	
To determine the answer, review the information below:	
<ul style="list-style-type: none"> <li>Are emissions of any regulated criteria pollutant increasing by 100 tpy of any criteria pollutant at a named source?</li> </ul>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<ul style="list-style-type: none"> <li>Are emissions of any criteria pollutant increasing by 250 tpy of any criteria pollutant at an unnamed source?</li> </ul>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<ul style="list-style-type: none"> <li>Are emissions increasing above significance levels at an existing major site?</li> </ul>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
PSD information can be found at: <a href="http://www.tceq.texas.gov/assets/public/permitting/air/Forms/NewSourceReview/Tables/10173tbl.pdf">www.tceq.texas.gov/assets/public/permitting/air/Forms/NewSourceReview/Tables/10173tbl.pdf</a> and <a href="http://www.tceq.texas.gov/permitting/air/nav/air_docs_newsource.html">www.tceq.texas.gov/permitting/air/nav/air_docs_newsource.html</a>	
<i>If "Yes," to any of the above, <b>a PBR may not be used</b>. A PSD Permit review must be completed to authorize the project.</i>	
<i>If "No," continue to Section 4.</i>	



**Texas Commission on Environmental Quality**  
**Permit by Rule Applicability Checklist**  
**Title 30 Texas Administrative Code § 106.4**

<b>4. 30 TAC § 106.4(a)(6): Federal Requirements</b>	
<ul style="list-style-type: none"> <li>Will all facilities under this PBR meet applicable requirements of Title 40 Code of Federal Regulations (40 CFR) Part 60, New Source Performance Standards (NSPS)?</li> </ul>	<input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> NA
<i>If "Yes," which Subparts are applicable?</i>	
<ul style="list-style-type: none"> <li>Will all facilities under this PBR meet applicable requirements of 40 CFR Part 63, Hazardous Air Pollutants Maximum Achievable Control Technology (MACT) standards?</li> </ul>	<input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> NA
<i>If "Yes," which Subparts are applicable?</i>	
<ul style="list-style-type: none"> <li>Will all facilities under this PBR meet applicable requirements of 40 CFR Part 61, National Emission Standards for Hazardous Air Pollutants (NESHAPs)?</li> </ul>	<input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> NA
<i>If "Yes," which Subparts are applicable?</i>	
<i>If "Yes" to any of the above, please attach a discussion of how the facilities will meet any applicable standards.</i>	
<b>5. 30 TAC § 106.4(a)(7): PBR prohibition check</b>	
<ul style="list-style-type: none"> <li>Are there any air permits at the site containing conditions which prohibit or restrict the use of PBRs?</li> </ul>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<i>If "Yes," PBRs may not be used or their use must meet the restrictions of the permit. A new permit or permit amendment may be required.</i>	
<i>List permit number(s):</i>	
<b>6. 30 TAC § 106.4(a)(8): NOx Cap and Trade</b>	
<ul style="list-style-type: none"> <li>Is the facility located in Harris, Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, or Waller County?</li> </ul>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<i>If "Yes," answer the question below. If "No," continue to Section 7..</i>	
<ul style="list-style-type: none"> <li>Will the proposed facility or group of facilities obtain required allowances for NOx if they are subject to 30 TAC Chapter 101, Subchapter H, Division 3 (relating to the Mass Emissions Cap and Trade Program)?</li> </ul>	<input type="checkbox"/> YES <input type="checkbox"/> NO



**Texas Commission on Environmental Quality**  
**Permit by Rule Applicability Checklist**  
**Title 30 Texas Administrative Code § 106.4**

<b>7. Highly Reactive Volatile Organic Compounds (HRVOC) check</b>		
• Is the facility located in Harris County?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
<i>If "Yes," answer the next question. If "No," skip to the box below.</i>		
• Will the project be constructed after June 1, 2006?	<input type="checkbox"/> YES <input type="checkbox"/> NO	
<i>If "Yes," answer the next question. If "No," skip to the box below.</i>		
• Will one or more of the following HRVOC be emitted as a part of this project?	<input type="checkbox"/> YES <input type="checkbox"/> NO	
<i>If "Yes" complete the information below:</i>		
<ul style="list-style-type: none"> <li>▶ 1,3-butadiene</li> <li>▶ all isomers of butene (e.g., isobutene [2-methylpropene or isobutylene])</li> <li>▶ alpha-butylene (ethylethylene)</li> <li>▶ beta-butylene (dimethylethylene, including both cis- and trans-isomers)</li> <li>▶ ethylene</li> <li>▶ propylene</li> </ul>	lb/hr	tpy
• Is the facility located in Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, or Waller County?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<i>If "Yes," answer the next question. If "No," the checklist is complete.</i>		
• Will the project be constructed after June 1, 2006?	<input type="checkbox"/> YES <input type="checkbox"/> NO	
<i>If "Yes," answer the next question. If "No," the checklist is complete.</i>		
• Will one or more of the following HRVOC be emitted as a part of this project?	<input type="checkbox"/> YES <input type="checkbox"/> NO	
<i>If "Yes," complete the information below:</i>		
<ul style="list-style-type: none"> <li>▶ ethylene</li> <li>▶ propylene</li> </ul>	lb/hr	tpy



# **Oil and Gas Handling and Production Facilities Air Permits by Rule (PBR) Checklist Title 30 Texas Administrative Code § 106.352(l)**

Check the most appropriate answer and include any technical information in the spaces provided. If additional space is needed, please include an extra page that references this checklist. The forms, checklists, and guidance documents are available from the Texas Commission on Environmental Quality (TCEQ), Air Permits Division Web site at: [www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-o/oil\\_and\\_gas.html](http://www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-o/oil_and_gas.html). If you have any questions, or need additional assistance, please contact the Air Permits Division at (512) 239-1250.

The facility can register by submitting this application and any supporting documentation. Below is a checklist to ensure you have provided all appropriate documentation. For sites that require registration or if the company chooses to register the site with the TCEQ, a Core Data Form is required with this checklist.

This checklist is for use by the operator to ensure a complete application.	
Have you included each of the following items in the application?	
<input type="checkbox"/>	Process Description.
<input type="checkbox"/>	Plot Plan or area map.
<input type="checkbox"/>	TCEQ Oil and Gas Emission Calculation Spreadsheet (or equivalent).
<input type="checkbox"/>	Detailed summary of maximum emissions estimates with supporting documentation, such as result reports from any emission estimation computer program.
<input type="checkbox"/>	Gas and Liquid Analyses. If a site-specific analysis is not submitted, please provide justification as to why a representative site was used.
<input type="checkbox"/>	Technical documents (manufacturer's specification sheet, operational design sheets).
<input type="checkbox"/>	State and Federal applicability.
<input type="checkbox"/>	Core Data Form (for new sites that have never been registered with the TCEQ).
General Information and Questions/Descriptions	
<p>Is the project located in one of the Barnett Shale counties and did the start of construction or modification begin on or after April 1, 2011? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>[<b>Note:</b> Counties included in the Barnett Shale area: Cooke, Dallas, Denton, Ellis, Erath, Hill, Hood, Jack, Johnson, Montague, Palo Pinto, Parker, Somervell, Tarrant, and Wise counties.]</p> <p>For what is considered start of construction see:  <a href="http://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/factsheet-const.pdf">www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/factsheet-const.pdf</a></p> <p><i>If "Yes," do not complete this checklist. The project is subject to the requirements of §106.352(a)-(k). Additional information for Barnett Shale area projects can be found at: <a href="http://www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-o/oil_and_gas.html">www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-o/oil_and_gas.html</a>.</i></p>	
<p>Are the total site-wide emissions from all facilities claimed under §106.352 less than 25 tpy VOC, 250 tpy NOx, 250 tpy CO, and 25 tpy SO<sub>2</sub>? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	



**Oil and Gas Handling and Production Facilities**  
**Title 30 Texas Administrative Code § 106.352(l)**

General Information and Questions/Descriptions (continued)	
Does any facility at the site handle a stream with more than 24 ppm hydrogen sulfide (H <sub>2</sub> S)? <i>If "Yes," answer the following questions.</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are there flares, engines, or turbines at the site?  <i>If "Yes," attach supporting documentation to demonstrate compliance with the requirements.</i>  <b>Additional information and checklists can be found at:</b> §106.492 Flares: <a href="http://www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-v/flares.html">www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-v/flares.html</a> §106.512 Stationary Engines and turbines: <a href="http://www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-w/stationary_eng_turb.html">www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-w/stationary_eng_turb.html</a>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Does any facility at the site handle a stream with more than 24 ppm hydrogen sulfide (H <sub>2</sub> S)?  <i>If "Yes," answer the following questions. Registration is required prior to the start of operation.</i> <i>If "No," the questions below are not applicable.</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Indicate the actual distance from the nearest emissions point to the nearest offsite receptor (ft):  An offsite receptor includes any recreational area, residence, or other structure not occupied or used solely by the owner or operator of the facility. A facility handling sour gas must be located at least 1/4 mile from the nearest offsite receptor.	<b>&gt;1320</b>
Indicate the total actual emission rate of sulfur compounds, excluding sulfur oxides, from all vents (lb/hr.):	<b>0.04</b>
Does the height of all vents at the site emitting sulfur compounds meet the minimum required height based on the H <sub>2</sub> S emission rate in 106.352(l)(4)?  [Note: Truck loading and fugitive sources are not considered vents.]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

**Recordkeeping:** To demonstrate compliance with the requirements of the PBR, sufficient records must be maintained at all times. The records must be made available immediately upon request to the commission or any air pollution control program having jurisdiction. If you have any questions about the recordkeeping requirements, contact the Air Permits Division or the Air Program in the TCEQ Regional Office for the region in which the site is located.



# **Exemption §106.492 Checklist** **(Previously Standard Exemption 80)** **Smokeless Gas Flares**

The following checklist is designed to help you confirm that you meet Exemption §106.492, previously standard exemption 80, requirements. Any "no" answers indicate that the claim of exemption may not meet all requirements for the use of Exemption §106.492, previously standard exemption 80. If you do not meet all the requirements, you may alter the project design/operation in such a way that all the requirements of the exemption are met, or obtain a construction permit.

YES	NO	NA	DESCRIPTION
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Have you included a description of how this exemption claim meets the general rule for the use of exemptions (§106.4 checklist is available)?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is the flare equipped with a tip designed to provide good mixing with air, flame stability and a tip velocity less than 60 ft/sec for gases having a lower heating value less than 1,000 BTU/ft <sup>3</sup> , or less than 400 ft/sec for gases with a LHV greater than 1,000 BTU/ft <sup>3</sup> ? Attach a description including BTU content and tip velocity (Table 8 is available).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is the flare equipped with a continuously burning pilot or other automatic ignition system that assures gas ignition whenever vents are directed to the flare? Attach a description of the system.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If the flare emits more than 4 #/hr of reduced sulfur compounds, excluding sulfur oxides, is it equipped with an alarm system that immediately notifies appropriate personnel when the ignition system ceases functioning? Attach a description of the system.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If the flare emits less than 4 #/hr of reduced sulfur compounds and is not equipped with an alarm system, does the stack height meet the requirements of condition (d) of §106.352, previously standard exemption STDX 66? EPN: FL-1 Required Height: 20 Actual Height: 20
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If the flare burns gases containing more than 24 ppmv of sulfur, chlorine or compounds containing either element, is it located at least 1/4 mile from any recreational area, residence, or other structure not occupied or used solely by the owner or operator of the flare or owner of the property where the flare is located? Attach a scaled map.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If the flare emits HCl, does the heat release (BTU/hr based on lower heating value) equal or exceed 2.73 x 10E5 x HCl emission rate(lb/hr)? Attach calculations.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If the flare emits SO <sub>2</sub> , does the heat release (BTU/hr based on lower heating value) equal or exceed 0.53 x 10E5 x SO <sub>2</sub> emission rate (lb/hr)? Attach calculations.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Will you limit the flare to burning only combustible mixtures of gases containing only carbon, hydrogen, nitrogen, oxygen, sulfur, chlorine, or compounds derived from these elements?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Will the gas mixture always have a net or lower heating value of at least 200 BTU/ft <sup>3</sup> prior to addition of air?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Do you understand and will you ensure that liquids shall never be burned in the flare?

### 3.3 FEDERAL REQUIREMENTS AND APPLICABILITY

This section presents a review of the federal air quality regulations that apply to operations as of February 2015 at the Guy Bob FRO A Pad.

#### Title 40 CFR Part 60 – NSPS

The table below presents the New Source Performance Standards (NSPS) that are potentially applicable to facilities at the Guy Bob FRO A Pad.

Subpart	Title 40 CFR Part 60	Applicability
Subpart A	General Provisions: §60.18 – General control device and work practice requirements	<i>The flare at this site operates in accordance with the design and operating requirements of this subpart.</i>
Subpart K	Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978	<i>The storage tanks at the site commenced construction after May 19, 1978. Therefore, this subpart does not apply.</i>
Subpart Ka	Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978 and Prior to July 23, 1984	<i>The storage tanks at the site commenced construction after July 23, 1984. Therefore, this subpart does not apply.</i>
Subpart Kb	Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	<i>The storage tanks at the site have a storage capacity less than 10,000 barrels and are used for petroleum or condensate stored, processed, or treated prior to custody transfer. Therefore, this subpart does not apply.</i>
Subpart KKK	Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011.	<i>This site does not operate an affected facility under this subpart. Therefore, this subpart does not apply.</i>

PERMIT BY RULE REGISTRATION  
EXCO OPERATING COMPANY, LP – GUY BOB FRO A PAD

Subpart	Title 40 CFR Part 60	Applicability
Subpart LLL	Standards of Performance for SO <sub>2</sub> Emissions From Onshore Natural Gas Processing for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011	<b><i>This site does not operate an affected facility under this subpart. Therefore, this subpart does not apply.</i></b>
Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution	<b><i>The site does have potentially applicable sources. However, any pneumatic components are intermittent or low bleed, and storage vessels have annual VOC emissions below 6 tpy, each. Therefore, there are no NSPS OOOO affected facilities located at the site.</i></b>

#### Title 40 CFR Part 61 – NESHAP

The table below presents the National Emission Standards for Hazardous Air Pollutants (NESHAP) that are potentially applicable to facilities at the Guy Bob FRO A Pad.

Subpart	Title 40 CFR Part 61	Applicability
Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)	<b><i>No sources at this site will operate in volatile hazardous air pollutant (VHAP) service as defined in §61.241 of this subpart.</i></b>

#### Title 40 CFR Part 63 – MACT

The table below presents the National Emission Standards for Hazardous Air Pollutants (NESHAP) that are potentially applicable to facilities at the Guy Bob FRO A Pad.

Subpart	Title 40 CFR Part 63	Applicability
Subpart HH	National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities	<b><i>This site is an area source of HAP emissions, but the site does not operate an affected source. Therefore, this subpart does not apply.</i></b>

## 4.0 ANALYSES

### 4.1 ANALYSES

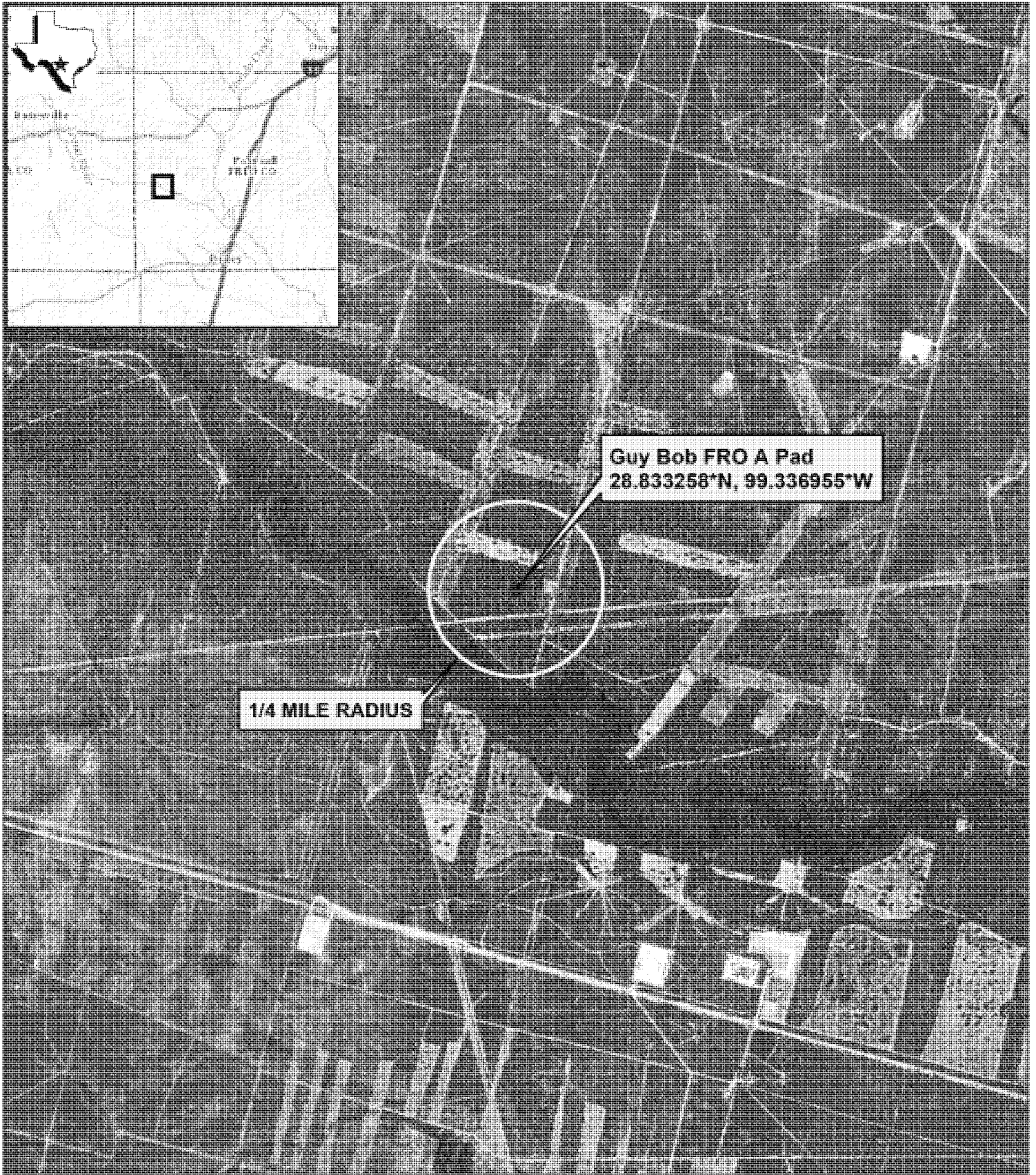
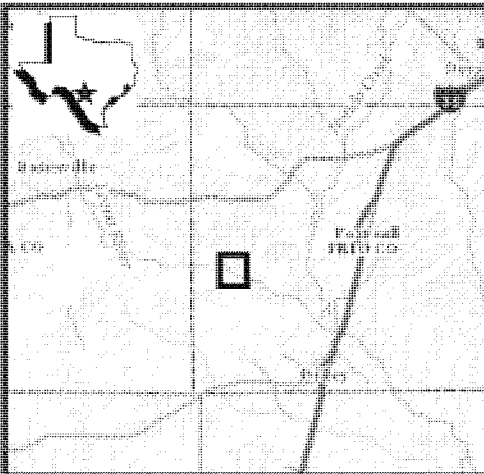
Emissions from the site are based on representative gas and liquid samples collected from Traylor North No. 1-H well that produces from the same geologic formation as the Guy Bob FRO A Pad well(s). Properties of the production and production equipment used at the Traylor North No. 1-H are similar to that of the Guy Bob FRO A Pad. The H<sub>2</sub>S content of the liquid and gas analyses have been adjusted to represent the site average concentration.

Sample Type	Sample Location /Sample Date	Equipment / Process Calculated
Gas	Traylor North No. 1H – Separator Gas – 4/17/2010	Fugitive emissions – gas components Planned MSS emissions Heater treater, high pressure separator, low pressure tower emissions
Liquid	Traylor North No. 1H – Separator Liquid – 4/17/2010	Fugitive emissions – liquid components Loading emissions Storage tank emissions – breathing/working

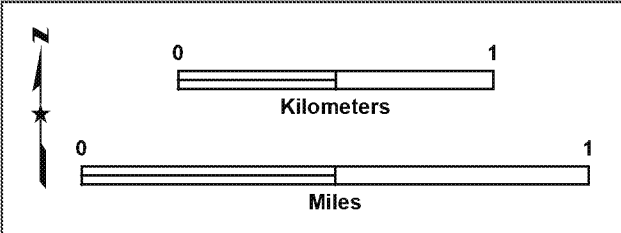
## **APPENDIX**

**AREA MAP**

**SUPPORTING DOCUMENTATION**



Datum: WGS84 Sources: ESRI- USGS National Topo Basemap & NAIP 2014 Texas 1m



AREA MAP			
GUY BOB FRO A PAD			
EXCO Operating Company, LP			
Frio County, Texas			
K:\EXCO Resources\013407 South Texas Air Permitting\Work Products\GIS\Task104_GuyBobFROA.mxd			
Drafted By: J. Knowles	Reviewed By: P. Witkowski	Project No.: 013407.104	Date: 1/29/2015

Gas and Liquid Analyses

<u>Gas Analysis</u>				
Where was the sample taken?	Taylor North No. 1-H - Separator Gas			
Who analyzed the sample?	Fesco			
Date of sample:	4/17/2010			
Component	mole %	Molecular Weight (grams/mole)	grams per 100 moles of gas	weight %
hydrogen	0.0000	1.00794	0	0.0000
helium	0.0000	4.0026	0	0.0000
nitrogen	0.5860	28.01340	16.4158524	0.7596
CO2	1.7660	44.00950	77.720777	3.5965
H2S	0.1000	34.08188	3.408188	0.1577
methane (C1)	74.1620	16.04246	1189.740919	55.0554
ethane (C2)	15.2490	30.06904	458.522791	21.2182
propane (C3)	5.7880	44.09562	255.2254486	11.8106
iso-butane (C4)	0.4330	58.12220	25.1669126	1.1646
nor-butane (C4)	1.2100	58.12220	70.327862	3.2544
iso-pentane (C5)	0.2220	72.14878	16.01702916	0.7412
nor-pentane (C5)	0.2910	72.14878	20.99529498	0.9716
hexanes (C6)	0.1550	86.17000	13.35635	0.6181
heptanes (C7)	0.0690	100.20000	6.9138	0.3199
octanes (C8)	0.0280	114.23000	3.19844	0.1480
nonanes (C9)	0.0100	128.26000	1.2826	0.0594
decenes (C10+)	0.0060	142.29000	0.85374	0.0395
benzene	0.0090	78.11000	0.70299	0.0325
ethylbenzene	0.0060	106.17000	0.63702	0.0295
toluene	0.0020	92.14000	0.18428	0.0085
xylene (M,P,O)	0.0030	106.17000	0.31851	0.0147
<b>TOTALS:</b>	<b>100.0950</b>		<b>2161</b>	<b>100.00</b>
<b>VOC (Non-methane, Non-ethane hydrocarbons)</b>				
VOC content of total sample		VOC content of hydrocarbon fraction only		
VOC weight% =	19.2125	VOC weight% =	20.1207	
VOC weight fraction =	0.1921	VOC weight fraction =	0.2012	
<b>HYDROGEN SULFIDE</b>				
H2S weight% = 0.1577		Constants:		
H2S weight fraction = 1.58E-03		453.592 mol/lb-mol		
H2S ppm <sub>v</sub> = 1000		0.0648 grams/grain		
H2S ppm <sub>WT</sub> = 1577.14		385.483 scf/lb-mol		
H <sub>2</sub> S grains/100 SCF = 44.6987		<b>SOUR GAS</b>		
<b>BENZENE</b>				
Benzene content of total sample		Benzene content of hydrocarbon fraction only		
Benzene weight% = 0.0325		Benzene weight% =	0.0341	
Benzene weight fraction = 0.0003		Benzene weight fraction =	0.0003	
Gas Molecular Weight = 21.61		Constants: 28.97 MWair		
Gas Specific Gravity = 0.75		385.483 scf/lb-mol		

Gas and Liquid Analyses

<u>Liquid Analysis</u>				
Where was the sample taken?	Traylor North No. 1-H - Separator Oil			
Who analyzed the sample?	Fesco			
Date of sample:	4/17/2010			
Component	mole %	Molecular Weight (grams/mole)	grams per 100 moles of gas	weight %
hydrogen	0.0000	1.00794	0	0.0000
helium	0.0000	4.0026	0	0.0000
nitrogen	0.0190	28.01340	0.5322546	0.0050
CO <sub>2</sub>	0.2260	44.009500	9.946147	0.0944
H <sub>2</sub> S	0.1000	34.081880	3.408188	0.0323
methane (C1)	5.7430	16.042460	92.13184778	0.8740
ethane (C2)	6.3380	30.069040	190.5775755	1.8079
propane (C3)	7.2510	44.095620	319.7373406	3.0332
iso-butane (C4)	1.1080	58.122200	64.3993976	0.6109
nor-butane (C4)	4.5640	58.122200	265.2697208	2.5165
iso-pentane (C5)	1.9210	72.148780	138.5978064	1.3148
nor-pentane (C5)	3.0610	72.148780	220.8474156	2.0951
hexanes (C6)	4.8540	86.170000	418.26918	3.9680
heptanes (C7)	4.1730	100.200000	418.1346	3.9667
octanes (C8)	3.8300	114.230000	437.5009	4.1504
nonanes (C9)	3.8080	128.260000	488.41408	4.6334
decane (C10+)	51.2150	142.290000	7287.38235	69.1326
benzene	0.3290	78.110000	25.69819	0.2438
ethylbenzene	0.6280	106.170000	66.67476	0.6325
toluene	0.3630	92.140000	33.44682	0.3173
xylene (M,P,O)	0.5670	106.170000	60.19839	0.5711
<b>TOTALS:</b>	<b>100.0980</b>		<b>10541</b>	<b>100.00</b>
<b>VOC (Non-methane, Non-ethane hydrocarbons)</b>				
VOC content of total sample		VOC content of hydrocarbon fraction only		
VOC weight% =	97.1863	VOC weight% =	97.3145	
VOC weight fraction =	0.9719	VOC weight fraction =	0.9731	
<b>HYDROGEN SULFIDE</b>				
H <sub>2</sub> S weight% =	0.0323			
H <sub>2</sub> S weight fraction =	3.23E-04			
H <sub>2</sub> S ppm <sub>v</sub> =	1000.00			
H <sub>2</sub> S ppm <sub>WT</sub> =	323.32			
<b>BENZENE</b>				
Benzene content of total sample		Benzene content of hydrocarbon fraction only		
Benzene weight% =	0.2438	Benzene weight% =	0.2441	
Benzene weight fraction =	0.0024	Benzene weight fraction =	0.0024	

**WELL SUMMARY****WELL INFORMATION**

Company:	Chesapeake Operating, Inc.
Well Name:	Traylor North No. 1-H
Field:	Eagle Ford
Location:	Zavala County, Texas

**RESERVOIR INFORMATION**

Formation:	Eagle Ford
Perforations:	Horizontal Completion
Reservoir Datum:	Unavailable
Reservoir Temperature:	190 °F
Static Reservoir Pressure:	3200 psig
Flowing Reservoir Pressure:	Unavailable

**SAMPLING INFORMATION**

Sampling Date:	04/17/10
Sampled By:	FESCO, Ltd. - Alice Lab
Sample Type:	1st Stage Separator Gas and Oil
Flowing Tubing Pressure:	325 psig
1st Stage Separator Pressure:	210 psig
1st Stage Separator Temperature:	85 °F
2nd Stage Separator Pressure:	Not Present
2nd Stage Separator Temperature:	Not Present

**PRODUCTION INFORMATION**

Test Date:	04/17/10
Gas Rate:	74 Mscf/d
Oil Rate:	236.00 STB/d
Water Rate:	0.00 STB/d
Stock Tank Gas-Oil Ratio:	314 (Scf Sep Gas / STB Oil)
Separator Gas-Oil Ratio:	287 (Scf Sep Gas / Sep Bbl Oil)
Shrinkage Factor:	0.91535 (ST Oil Vol / Sep Oil Vol)



**TABLE 1-B**

**COMPOSITIONAL ANALYSIS OF THE SEPARATOR GAS, OIL  
AND MATHEMATICALLY RECOMBINED WELLSTREAM THROUGH C<sub>11</sub>**

SEPARATOR GOR..... 287 Scf/Sep Bbl

SEPARATOR PRESSURE..... 210 psig

SEPARATOR TEMPERATURE..... 85 °F

Component	SEPARATOR GAS		SEPARATOR OIL		WELLSTREAM	
	Mole%	* GPM	Mole %	Liquid Volume %	Mole %	Liquid Volume %
Hydrogen Sulfide	0.005	0.000	0.000	0.000	0.002	0.000
Nitrogen	0.586	0.000	0.019	0.003	0.206	0.042
Carbon Dioxide	1.766	0.000	0.226	0.054	0.732	0.230
Methane	74.162	0.000	5.743	1.364	28.214	8.809
Ethane	15.249	4.056	6.338	2.377	9.265	4.565
Propane	5.788	1.584	7.251	2.797	6.770	3.432
Iso-butane	0.433	0.141	1.108	0.508	0.886	0.534
N-butane	1.210	0.379	4.564	2.016	3.463	2.010
2-2 Dimethylpropane	0.000	0.000	0.000	0.000	0.000	0.000
Iso-pentane	0.222	0.081	1.921	0.986	1.363	0.919
N-pentane	0.271	0.098	3.058	1.553	2.143	1.430
2-2 Dimethylbutane	0.001	0.000	0.014	0.008	0.010	0.007
Cyclopentanes	0.020	0.006	0.003	0.001	0.009	0.005
2-3 Dimethylbutane	0.000	0.000	0.305	0.175	0.205	0.154
2 Methylpentane	0.047	0.019	0.954	0.555	0.656	0.501
3 Methylpentane	0.027	0.011	0.632	0.362	0.433	0.326
Other Hexanes	0.000	0.000	0.000	0.000	0.000	0.000
n-Hexane	0.061	0.025	1.716	0.989	1.173	0.888
Methylcyclopentane	0.019	0.007	0.684	0.339	0.466	0.304
Benzene	0.009	0.003	0.329	0.129	0.224	0.115
Cyclohexane	0.000	0.000	0.549	0.262	0.368	0.231
2-Methylhexane	0.010	0.005	0.379	0.247	0.258	0.221
3-Methylhexane	0.010	0.005	0.589	0.379	0.399	0.337
2,2,4 Trimethylpentane	0.000	0.000	0.001	0.001	0.001	0.001
Other Heptanes	0.021	0.009	0.902	0.550	0.613	0.491
n-Heptane	0.019	0.009	1.437	0.929	0.971	0.825
Methylcyclohexane	0.009	0.004	0.866	0.488	0.584	0.433
Toluene	0.006	0.002	0.628	0.295	0.423	0.261
Other C8's	0.022	0.010	2.631	1.729	1.774	1.532
n-Octane	0.006	0.003	1.198	0.860	0.807	0.761
Ethylbenzene	0.002	0.001	0.363	0.196	0.245	0.174
M&P-Xylene	0.002	0.001	0.287	0.156	0.194	0.138
O-Xylene	0.001	0.000	0.280	0.149	0.189	0.132
Other C-9's	0.008	0.004	2.829	2.076	1.903	1.835
n-Nonane	0.002	0.001	0.979	0.773	0.658	0.683
Other C10's	0.004	0.002	3.367	2.716	2.262	2.398
n-Decane	0.001	0.001	0.888	0.765	0.597	0.675
Undecanes Plus	0.001	0.001	46.961	73.211	31.537	64.602
TOTAL	100.000	6.466	100.000	100.000	100.000	100.000

NO. DATE

REVISION DESCRIPTION

BY

CD

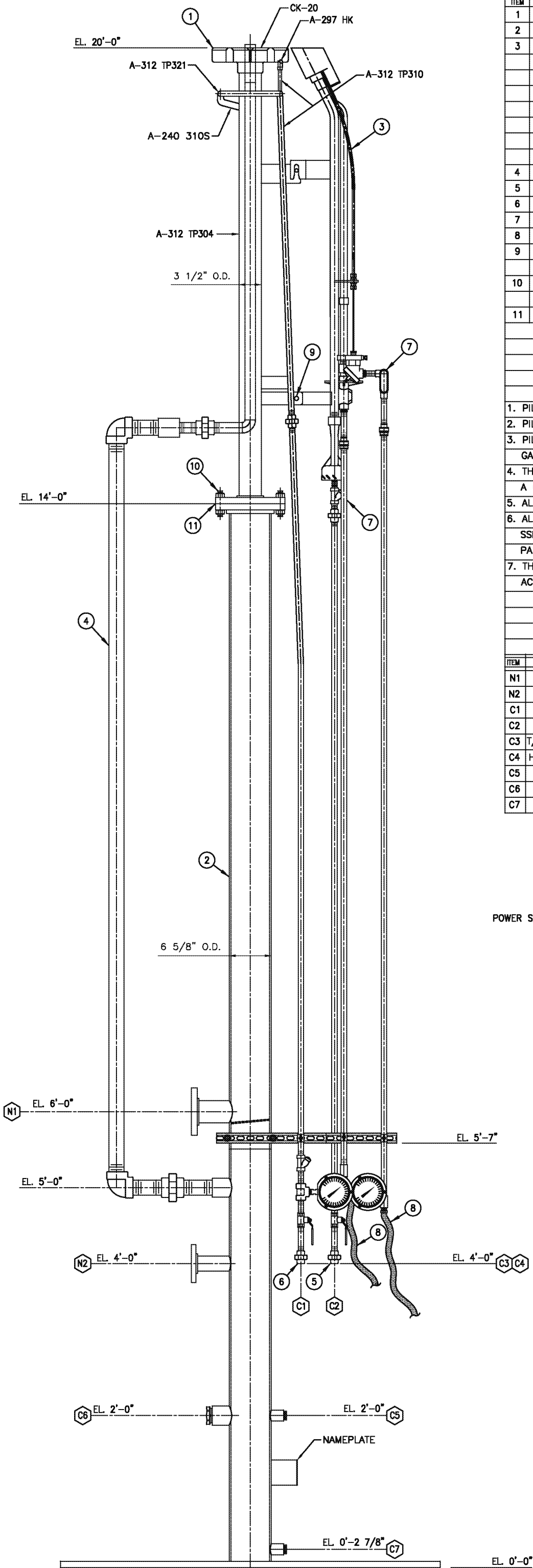
APP.

DESIGNED BY: JAC  
CHECKED BY: JAC  
DRAWN BY: JAC  
DATE: 01/10/2014  
PROJECT: 010 200-2001  
FILE: 010 200-2001-001  
SCALE: 1/8" = 1'-0"

GENERAL ARRANGEMENT  
FOR  
MJAG-3D-20 FLARE SYSTEM  
ZEECO

DRAWING NUMBER  
B-SC-8209  
SHEET 1 OF 2

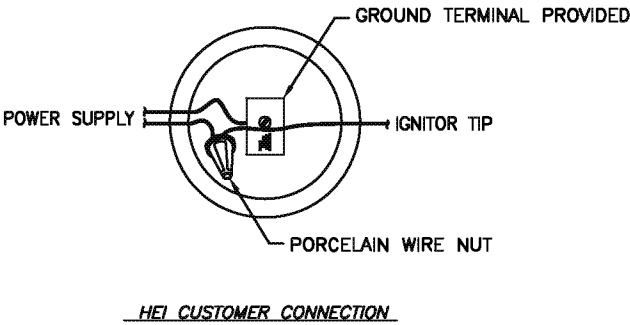
DRAWN: JAC  
CHECKED: JAC  
SCALE: 1/8" = 1'-0"  
DATE: 29 OCT 12  
APP: JAC  
REV: 0



- PARTS LIST -				
ITEM	QTY	DESCRIPTION	PART NO	MATERIAL
1	1	MJAG-3D-20 FLARE TIP ASS'Y	KC-2356	310SS/CS
2	1	MJAG-3D-20 HP FLARE STACK ASS'Y	KC-2494	CS
3	1	HSLF-Z-HEI-T/C PILOT NIPPLE ASSEMBLY	MB-1741	-//-
COMPLETE WITH:				
-		HEI IGNITION PROBE		A-743 CF3M
-		THERMOCOUPLE		310 SS
-		HSLF-Z MIXER BODY		A-743 CF3M
-		HSLF-Z MIXER SPUD		F837 18-8
-		PIPE		A-312 TP316
-		STRAINER W/ PLUG		A-743 CF8M
4	1	LP GAS SPOOL	KC-2567	A-105/A-106
5	1	PILOT GAS SPOOL	KC-2568	A-105/A-106
6	1	ASSIST GAS SPOOL	KC-2569	A-105/A-106
7	1	CONDUIT & FITTINGS	1/2"	CS/GALV.
8	2	FLEXIBLE CONDUIT	1/2" x 35' LG.	-//-
9	1	MACHINE BOLT	1/2" x 1 1/4" LG	A-193 B8
		W/ HEAVY HEX NUT		A-194 Gr 8
10	8	STUDBOLT	3/4" x 4" LG	A-193 B7
		W/ 2 HEAVY HEX NUTS		A-194 2H
11	1	GASKET	6" 150#	C4401

- NOTES -
- PILOT MIXER ORIFICE DRILLED: 3/64"
  - PILOT GAS CONSUMPTION: 65 SCFH @ 15 PSIG PER PILOT
  - PILOT ORIFICE DRILLING BASED ON 1000 BTU/SCF (LHV)  
GAS WITH 0.6 SP. GR.
  - THE FLARE TIP REQUIRES A CONTINUOUS PURGE OF 20 SCFH  
A GAS THAT WILL NOT GO TO DEW POINT AT OPERATING TEMPERATURES.
  - ALL FLANGE BOLTING TO STRADDLE NORMAL CENTERLINES.
  - ALL EXTERNAL CARBON STEEL SURFACES TO BE PREPARED PER  
SSPC-SP6. PRIME WITH ONE COAT INORGANIC ZINC (2 1/2 MILS DFT MIN.)  
PAINT ONE COAT HIGH TEMP ALUMINUM (1 MIL DFT MIN.)
  - THE PILOT THERMOCOUPLE IS FOR ON/OFF INDICATION ONLY, NOT FOR  
ACCURATE MEASUREMENT OF THE PILOT FLAME TEMPERATURE.

- NOZZLE LEGEND -						
ITEM	SERVICE	SIZE	RATING	TYPE	SCH./BORE	FLG. MAT'L
N1	HP FLARE GAS INLET	3"	150#	RFSO	SCH.40	A-105
N2	LP FLARE GAS INLET	2"	150#	RFSO	SCH.40	A-105
C1	ASSIST GAS INLET	1/2"	N/A	FNPT	N/A	A-105
C2	PILOT GAS INLET	1/2"	N/A	FNPT	N/A	A-105
C3	T/C CONDUIT CONNECTION	3/4"	N/A	FNPT	N/A	N/A
C4	HEI CONDUIT CONNECTION	3/4"	N/A	FNPT	N/A	N/A
C5	STACK DRAIN	1"	N/A	FNPT	N/A	A-105
C6	LEVEL SWITCH	2"	N/A	FNPT	N/A	A-105
C7	STACK DRAIN	1"	N/A	FNPT	N/A	A-105



**END OF APPLICATION**



December 13, 2019

U.S. Environmental Protection Agency, Region 6  
Air Enforcement Branch  
1201 Elm Street, Suite 500  
Dallas, TX 75270

Attn: Mr. Brandon Bammel

**Re: Request for Extension of Time to Respond to Alleged Observed Emissions at Anadarko E&P Onshore LLC Facilities in the Permian Basin**

Dear Mr. Bammel:

This letter serves as a timely response to the U.S. Environmental Protection Agency's ("EPA") letter dated November 26, 2019 concerning alleged observations of emissions with Optical Gas Imaging helicopter flyovers (the "Letter"). The Letter was addressed to Anadarko E&P Onshore LLC ("Anadarko E&P"), and was received on December 4, 2019. Occidental Petroleum Corporation ("Oxy") acquired Anadarko Petroleum Corporation ("Anadarko") and its related entities on August 8, 2019, including Anadarko E&P, and the person to whom the Letter was addressed is no longer with the company. My team received the Letter on December 9, 2019.

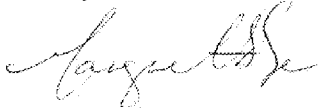
Anadarko (now part of Oxy) has conducted a review of the nine (9) listed facilities in the Letter by reviewing the coordinates provided in the Letter for each site and viewing the attendant flyover videos. Of the nine (9) listed sites, four (4) sites are neither owned nor operated by Anadarko. While the names of the sites listed are those of Anadarko's, the coordinates and the videos do not align with the site names or the RN's. The four (4) sites at issue include: 1) the "Sevengills 55-1-35 Production Pad;" 2) the "McKnight 54-1-29 Unit Well 6H 9H;" 3) the "Beaver 57-1-16 Unit 1H;" and 4) the "Magic State 56-3-39." For the first site, one of our operators physically went to the Sevengills 55-1-35 Production Pad, reviewed the coordinates and corresponding video and determined that based on the information provided by EPA, the site at issue is a non-Anadarko, third party site. For the remaining three (3) sites, based on the coordinates provided and the corresponding videos, these flyovers were in fact conducted over non-Anadarko assets.

Further, there are two (2) sites that are listed in the Letter that are not Anadarko E&P facilities, but rather midstream facilities that are owned and operated by subsidiaries of Western Midstream Partners, LP ("WES"). WES is an Anadarko entity that handles midstream energy assets, and a response to this Letter relating to those two (2) sites will be sent under separate cover by WES.

The remaining three (3) sites listed in the Letter have been verified to be Anadarko E&P facilities. These sites include: 1) "Big Piney 57-2-41;" 2) "Winghead State 57-2-48 Unit B 4H 5H;" and 3) "Winghead 56-2-43 2H Tank Battery." Given the circumstances of the receipt date of this Letter, and to ensure a thorough review of our records and permits for the three (3) Anadarko E&P sites, we are respectfully requesting an extension of time to respond until December 23, 2019.

If you have any questions regarding the Anadarko E&P sites, or require additional information, please call me at (713) 366-5613 or reach me by email at [margrethe\\_berge@oxy.com](mailto:margrethe_berge@oxy.com).

Sincerely,

A handwritten signature in cursive script, appearing to read "Margrethe Berge".

Margrethe Berge  
Environmental Manager

## Appointment

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**From:** Thompson, Steve [thompson.steve@epa.gov]  
**Sent:** 10/31/2019 7:29:56 PM  
**To:** Kuehn, Elizabeth, NMENV [Elizabeth.Kuehn@state.nm.us]; Morris, Allan, NMENV [Allan.Morris@state.nm.us]; Bammel, Brandon [Bammel.Brandon@epa.gov]; Barnett, Cheryl [Barnett.Cheryl@epa.gov]; Fried, Gregory [Fried.Gregory@epa.gov]; Williams, Christopher [Williams.Christopher@epa.gov]; Hoyt, Daniel [Hoyt.Daniel@epa.gov]; Larson, Darrin [Larson.Darrin@epa.gov]; Ely, Sandra, NMENV [Sandra.Ely@state.nm.us]  
**CC:** Klepp, Robert [Klepp.Robert@epa.gov]; Ahuja, Anupa [ahuja.anupa@epa.gov]  
**Subject:** Flyover discussion with NMED  
**Attachments:** 2019 NM Permian Basin Flyovers.pptx  
**Location:** R6-ConfRm-7F-MediumRm7411  
**Start:** 10/31/2019 7:30:00 PM  
**End:** 10/31/2019 8:30:00 PM  
**Show Time As:** Tentative

**Required Attendees:** Kuehn, Elizabeth, NMENV; Morris, Allan, NMENV; Bammel, Brandon; Barnett, Cheryl; Fried, Gregory; Williams, Christopher; Hoyt, Daniel; Larson, Darrin; Ely, Sandra, NMENV  
**Optional Attendees:** Klepp, Robert; Ahuja, Anupa

1-202-991-0477

Code: 4886583

Message

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**From:** Barnett, Cheryl [Barnett.Cheryl@epa.gov]  
**Sent:** 9/19/2019 3:54:06 PM  
**To:** Tripathi, Arati [Tripathi.Arati@epa.gov]; Bammel, Brandon [Bammel.Brandon@epa.gov]  
**Subject:** FW: EPA Region 6 flyover of Permian Basin  
**Attachments:** EPA Request 07012019.docx

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**From:** Kuehn, Elizabeth, NMENV <Elizabeth.Kuehn@state.nm.us>  
**Sent:** Monday, July 01, 2019 10:30 AM  
**To:** Larson, Darrin <Larson.Darrin@epa.gov>  
**Cc:** Thompson, Steve <thompson.steve@epa.gov>; Morris, Allan, NMENV <Allan.Morris@state.nm.us>  
**Subject:** RE: EPA Region 6 flyover of Permian Basin

Darrin,

Attached is a draft document that cites the Department's enforcement authority by statute, regulation, and permit. This is very rough and not at all in position worth sharing, but I wanted to send you something as soon as possible.

Here are links to individual permits:

[GCP-6 Permit](#)  
[GCP-O&G permit](#)  
[GCP-Temporary Control-](#)  
[NSR Permit General Conditions](#)

AQB maintains all of the monitoring protocols for individual equipment on this webpage:

<https://www.env.nm.gov/air-quality/permitting-section-procedures-and-guidance/>

Thanks,

Liz

Liz Bisbey-Kuehn  
Bureau Chief  
New Mexico Environment Department  
Air Quality Bureau  
525 Camino de los Marquez, Suite 1  
Santa Fe, NM 87505-1816  
Office: (505) 476-4305 Cell: (505) 670-9279  
[Elizabeth.Kuehn@state.nm.us](mailto:Elizabeth.Kuehn@state.nm.us)  
<https://www.env.nm.gov/>  
"Innovation, Science, Collaboration, Compliance"

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**From:** Larson, Darrin <Larson.Darrin@epa.gov>  
**Sent:** Tuesday, June 4, 2019 4:16 PM  
**To:** Kuehn, Elizabeth, NMENV <Elizabeth.Kuehn@state.nm.us>  
**Cc:** Thompson, Steve <thompson.steve@epa.gov>  
**Subject:** [EXT] RE: EPA Region 6 flyover of Permian Basin

Good afternoon,

In preparation for the flyover later this summer, we'd like to get a better understanding of how NMED handles emission violations similar to those we typically identify with the optical gas imaging camera, such as unlit flares, improperly operating flares, and leaking tanks and equipment. For our work in Texas, for example, we identified specific citations in the different types of EPA SIP-approved permits associated with these violations to enable us to know in advance what the specific state citation(s) would be for an unlit flare, etc.

Would you be available for call the week of June 17 to discuss this?

We thought it might be helpful to use some of the potential violations observed during the recent EPA-NMED inspections to help us understand NMED's approach (re: what you would pursue as a violation, and what you would cite to). Also, if you have any examples of enforcement orders issued by NMED for oil and gas air violations, that would be helpful.

Thanks,

Darrin

Darrin Larson  
Chief, Air Permitting Enforcement Section (ECDAP)  
U.S. EPA Region 6  
Office: 214-665-7115  
Mobile: 972-467-5509

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**From:** Kuehn, Elizabeth, NMENV <[Elizabeth.Kuehn@state.nm.us](mailto:Elizabeth.Kuehn@state.nm.us)>  
**Sent:** Friday, March 29, 2019 5:05 PM  
**To:** Larson, Darrin <[Larson.Darrin@epa.gov](mailto:Larson.Darrin@epa.gov)>  
**Cc:** Thompson, Steve <[thompson.steve@epa.gov](mailto:thompson.steve@epa.gov)>  
**Subject:** RE: EPA Region 6 flyover of Permian Basin

Darrin,  
Thanks for the heads up. We look forward to the discussion in April.

Liz

Liz Bisbey-Kuehn  
Bureau Chief  
New Mexico Environment Department  
Air Quality Bureau  
525 Camino de los Marquez, Suite 1  
Santa Fe, NM 87505-1816  
Office: (505) 476-4305 Cell: (505) 670-9279  
[Elizabeth.Kuehn@state.nm.us](mailto:Elizabeth.Kuehn@state.nm.us)  
<https://www.env.nm.gov/>  
"Innovation, Science, Collaboration, Compliance"

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**From:** Larson, Darrin <[Larson.Darrin@epa.gov](mailto:Larson.Darrin@epa.gov)>  
**Sent:** Thursday, March 28, 2019 6:37 PM  
**To:** Kuehn, Elizabeth, NMENV <[Elizabeth.Kuehn@state.nm.us](mailto:Elizabeth.Kuehn@state.nm.us)>  
**Cc:** Thompson, Steve <[thompson.steve@epa.gov](mailto:thompson.steve@epa.gov)>  
**Subject:** [EXT] EPA Region 6 flyover of Permian Basin

Liz,

Steve Thompson asked me to share with you the areas of the Permian Basin in New Mexico that we'd like to include in our 2019 Permian Basin flyover of oil and gas production facilities. I'm attaching two maps—one shows where we'd like to fly this year, and one provides an overlay of where we flew in 2014.

We'd like to discuss with you how to approach addressing violations that we observe during the flyover. We could identify potential violations and hand them over to the state, or take the lead on cases and consult with the state on our approach. For our work in Texas in 2018, we closely coordinated with the state and followed an enforcement approach supported by the state. We issued Notice of Violation letters to facilities and provided a draft Administrative Order on Consent to companies interested in settling within weeks of sending the NOV letter. By focusing on the noncompliance that was causing emissions rather than undertaking a broad compliance investigation through the use of information requests, we reduced the burden on the regulated community, as they could respond to the NOV by taking steps to return unlit or improperly operated flares, leaking tanks, and other sources of emission to compliance rather than having to respond to an information request and incur additional transaction costs.

In addition, rather than seeking a penalty for the violations, which likely would have resulted in weeks or months of negotiations with little environmental benefit, EPA in most cases pursued Orders requiring the facilities to document the steps taken to return to compliance, and to inspect all flares, tanks, and other equipment at facilities to ensure that they were properly operated and continuously lit.

Steve will be in New Mexico for the EPA Region 6-NMED quarterly next month, so hopefully that is a good time to discuss the flyovers.

Please let me know if you have any questions.

Darrin

Darrin Larson  
Chief, Air Permitting Enforcement Section (6EN-AA)  
U.S. EPA Region 6  
Office: 214-665-7115  
Mobile: 972-467-5509

## Enforcement References for Notices of Violation

- I. State Statutes: NMSA 1978, Chapter 74 – Environmental Improvement, Article 2 – Air Pollution, 74-2-1 through 74-2-22** ([ HYPERLINK "[https://law.justia.com/codes/new-mexico/2006/nmrc/jd\\_ch74art2-1b0f5.html](https://law.justia.com/codes/new-mexico/2006/nmrc/jd_ch74art2-1b0f5.html)" ], “AQCA”)

### **74-2-12. Enforcement; compliance orders; field citations:**

- A. When, on the basis of any information, the secretary or the director determines that a person has violated or is violating a requirement or prohibition of the Air Quality Control Act, a regulation promulgated pursuant to that act or a condition of a permit issued under that act, the secretary or the director may:
- (1) issue a compliance order within one year after the violation becomes known by the department or the local agency stating with reasonable specificity the nature of the violation and requiring compliance immediately or within a specified time period or assessing a civil penalty for a past or current violation, or both; or
  - (2) commence a civil action in district court for appropriate relief, including a temporary or permanent injunction.

### **II. OPERATING PERMITS, 20.2.70.302 PERMIT CONTENT:**

- (2) Each permit issued shall, additionally, include provisions stating the following.  
The permittee shall comply with all terms and conditions of the permit. Any permit noncompliance is grounds for enforcement action. In addition, noncompliance with federally enforceable permit conditions constitutes a violation of the federal act.

**20.2.70.408 ENFORCEMENT:** Notwithstanding any other provision in the New Mexico State Implementation Plan approved by the Administrator, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of the terms or conditions of a permit issued pursuant to this Part.

### **III. CONSTRUCTION PERMITS, 20.2.72.210 PERMIT CONDITIONS:**

- D. Any term or condition imposed by the department on a permit or permit revision is enforceable to the same extent as a regulation of the board.

**20.2.72.218 ENFORCEMENT:** Notwithstanding any other provision in the New Mexico State Implementation Plan approved by the administrator, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of the terms or conditions of a permit issued pursuant to this part, including permits for sources meeting the applicability requirements 20.2.74 NMAC (Prevention of Significant Deterioration), or 20.2.79 NMAC (Permits - Nonattainment Areas).

### **IV. NSR Permit Parts A and B Specific Conditions**

#### **A104 Facility: Regulated Sources**

- A. Table 104.A lists the emission units authorized for this facility.

#### **A105 Facility: Control Equipment**

- A. Table 105 lists all the pollution control equipment required for this facility. Each emission point is identified by the same number that was assigned to it in the permit application.

#### **A106 Facility: Allowable Emissions**

## Enforcement References for Notices of Violation

- A. The following Section lists the emission units and their allowable emission limits.

### **A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions**

- A. The maximum allowable SSM and Malfunction emission limits for this facility are listed in Table 107.A and were relied upon by the Department to determine compliance with applicable regulations.

### **B112 Compliance**

- A. The Department shall be given the right to enter the facility at all reasonable times to verify the terms and conditions of this permit...
- C. Emissions limits associated with the energy input of a Unit, i.e. lb/MMBtu, shall apply at all times unless stated otherwise in a Specific Condition of this permit. The averaging time for each emissions limit, including those based on energy input of a Unit (i.e. lb/MMBtu) is one (1) hour unless stated otherwise in a Specific Condition of this permit or in the applicable requirement that establishes the limit.

### **GCP-1 – Oil & Gas Installations**

#### **II. Operating Terms and Conditions [20 NMAC 2.72.220 A.2.c. (1)]**

##### **II.B. Emission Restrictions**

1. Actual emissions shall not exceed the hourly emission limits specified in the registration form and the annual emissions limits described in this Section.
- a. Actual emissions for all equipment except glycol dehydrators are calculated without consideration of any control equipment. Calculations of emissions from glycol dehydrators may take into consideration control equipment listed in the registration form.

**II.B.5. Flares.** The annual emissions from all routine, non-emergency flares at the Installation shall not exceed 27 TPY of SO<sub>2</sub>. No flare pits are allowed under this general permit. This limit ensures that the NMAAQs, National Ambient Air Quality Standards (NAAQS), and Potential for Significant Deterioration (PSD) increment for SO<sub>2</sub> are not exceeded.

##### **II.E.2 Engine and Turbine Stack Parameters and Sampling Ports**

Stacks shall be equipped with sampling ports, utilities, and equipment sufficient to verify compliance with the lb/hr emission limits in the registration form using applicable test methods. Safe access shall be provided to sampling ports. Flow straighteners shall be installed where necessary to prevent cyclonic flow in the stack. [20 NMAC 2.72.210.C]

#### **IV. Changes by the Registered Installation**

Owners or operators of registered Installations shall report to the Department any Installation change that alters information on the registration form, including any change to or addition of equipment that has a portable source permit, according to paragraph I.B.4.

### **GCP-4 Combustion Sources and Related Equipment**

#### **VII. Specifications of Allowable Equipment, Allowable Controls, and Siting Registration Information**

##### **Unlit Flares – VII.5 Flares**

Flares shall have a minimum height of 20 feet, and shall be equipped with a mechanism to ensure a continuous ignition source whenever gas is present. All routine, non-emergency flares shall be operated with no visible emissions.

##### **VII.10 Vapor Recovery Units**

Vapor Recovery Units shall be closed loop systems that capture and route VOCs back to the process stream and do not vent to the atmosphere.

##### **VII.12 Combustion Units That Use Liquid Fuel**

## Enforcement References for Notices of Violation

Liquid fuel shall meet the requirements of Condition V.4.d, and NO<sub>x</sub> emissions shall not exceed those set in Condition III.16.

### **GCP-Oil & Gas Permit**

**A104 Facility: Regulated sources A.** Table 104 lists the emission units authorized for this facility.

Emission units identified as exempt activities (as defined in 20.2.72.202 NMAC) and/or equipment not regulated pursuant to the Act are authorized, but not included in Table 104.

**A107 Facility: Allowable Startup, Shutdown, and Maintenance (SSM) and Malfunction Emissions**

**A110 Facility: Fuel and Fuel Sulfur Requirements A. Fuel and Fuel Sulfur Requirements for Equipment other than Flares, Requirement**

**A204 Glycol Dehydrators**

**A204 C. Glycol Dehydrators Control Device Inspection,** Requirement: To demonstrate compliance with the allowable emission limits in the Registration Form, the permittee shall control the still vent and/or flash tank emissions as indicated in the Registration Form. The permittee shall comply with Requirement 1 below: 1) At no time during normal operations shall any emissions from the still vent, condenser, or flash tank be vented to the atmosphere, if controlled.

**A 207 B. Flares Pilot Flame, Visible Emissions and Operational**

Requirement: Compliance with the allowable emission limits for flares(s) in the Registration form shall be demonstrated by the following: 3) the flare shall be equipped with a continuous pilot flame or an auto-igniter or require a manual ignition. 4) for flares with continuous pilot flame or an auto-igniter, the flare shall be equipped with a system to ensure that the flare is operated with flame present at all times that gas is sent to the flare. 5) for flares with manual ignition, the permittee shall inspect and ensure that a flame is present upon initiating each flaring event. 6) The flare shall combust gas at all times gas is sent to the flare. 7) The flare shall be installed, operated, and maintained according to manufacturer's or equivalent specifications. 8) The flare shall be operated with no visible emissions except for periods not to exceed a total of sixty (60) seconds during any fifteen (15) consecutive minutes.

**A208 B. Enclosed Combustion Device (ECD) or Thermal Oxidizer (TO)**

**A209 A. Vapor Recovery Units, Recovery Towers, and Ultra Low-Pressure Separators, Vapor Recovery Unit or Department-approved Equivalent**

### **GCP-6 – Voluntary Permit to Lower Emissions below NSPS OOOO/OOOOa thresholds**

**A107 Vapor Recovery Unit (VRU) or Ultra-Low Pressure Separator (ULPS) and Compressor**

**A107.A. Operation.** Requirement: IF a VRU or ILPS and Compressor is installed as a method of reducing or capturing VOCs prior to or after the Storage Vessel, emissions shall be routed at all times to the VRU or ILPS and compressor. The VOC emissions shall be captured and routed via a closed loop system back to the process stream such that no emissions are vented to the atmosphere.

**A108 Flare: A. Operation**

**Requirement:** 1) If a flare is installed as a method of reducing VOC emissions, the emissions from the Storage Vessel shall be routed at all times to the flare. 2) The permittee shall determine the minimum volume and BTU content of the gas necessary to ensure combustion of the gases. 3) The flare shall be operated such that no visible emissions are observed, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. 4) the flare shall be equipped with a system to ensure that it is operated with a flame present at all times.

**A109 Thermal Oxidizer**

**A110 Carbon Adsorption**

**A111 Condenser**

## Enforcement References for Notices of Violation

**A113 20.2.61. NMAC Opacity Requirement:** Visible emissions from all stationary combustion emission stacks shall not equal or exceed an opacity of 20 percent.

### **GCP Temporary Control**

#### **A201 Flare or Combustor**

##### **A. Pilot Flame, Visible Emissions, and Operational Requirements**

Requirement: Compliance with the allowable emission limits for flares and combustors in the

Registration form shall be demonstrated by the following: 3) the flare or combustor shall be equipped with continuous pilot flame or an auto-igniter. 4) the flare or combustor shall be equipped with a system to ensure that they are operated with a flame present at all times that gas is sent to the unit(s). 5) the flare or combustor shall combust gas at all times gas is sent to the unit(s). 6) The flare or combustor shall be installed, operated, and maintained according to the manufacturer's specifications. 7) the flare or combustor shall be operated with no visible emissions except for periods not to exceed a total of sixty (60) seconds during any ten (10) consecutive minutes.



Midcontinent Business Unit  
6301 Deauville Blvd  
Midland, TX 79782  
Tel (432) 687-7429  
dmccintyre@chevron.com

December 12, 2019

Via email at bammel.brandon@epa.gov

Brandon Bammel  
U.S. Environmental Protection Agency, Region 6  
1201 Elm Street  
Dallas, TX 75270-210

**Re: Observed Emissions at Chevron U.S.A Inc. Facilities in Permian Basin**

Dear Mr. Bammel,

Chevron U.S.A. Inc ("Chevron") received the attached EPA letter and summary table dated 11/26/2019 along with the two videos (G6m156 and G7774) enclosed therein. The letter directed Chevron to review each optical gas imaging (OGI) video and for each facility to verify ownership, confirm each facility's identity, provide the current site-specific permit information (both permit and application) and take any corrective actions to address any unauthorized hydrocarbon emissions at the facilities listed in the enclosure and identified in the OGI videos. After reviewing the videos and summary table, Chevron can confirm that it does not own either facility in either of the two videos.

Chevron has reviewed the first video (G6m156) and confirms that the facility in such video is not Chevron's Reeves Compressor Station (RN108923210) nor any other facility owned by Chevron. Reeves Compressor Station is located at latitude 31.2707472°, longitude -103.3125250°.

Chevron has reviewed the second video (G774) and confirms that the facility in such video is not Chevron's Scarlett TX CTB (RN109746750) nor any other facility owned by Chevron. Scarlett TX CTB is located at latitude 31.7991667°, longitude -104.1069444°.

Please do not hesitate to contact me at 432-687-7429 or by email at dmccintyre@chevron.com, if you have any questions or require further information regarding this matter.

Sincerely,

Doug McIntyre  
Air Team Lead  
MidContinent Business Unit

Enclosure



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 6  
1201 Elm Street, Suite 500  
Dallas, Texas 75270

NOV 26 2019

CERTIFIED MAIL – RETURN RECEIPT REQUESTED: 7015 1520 0003 4072 8227

Julianne Baer  
HES Specialist  
Chevron U.S.A. Inc.  
6301 Deauville Blvd.  
Midland, Texas 79706

Re: Observed Emissions at Chevron U.S.A. Inc. Facilities in the Permian Basin

Dear Ms. Baer:

The United States Environmental Protection Agency, Region 6 (“EPA”) contracted helicopter flyovers for a portion of the Permian Basin during September 10, 2019 through October 3, 2019, to assess emission sources using Optical Gas Imaging (“OGI”) technology. We are contacting companies that own/operate facilities where OGI video captures have shown potentially unauthorized emissions. The OGI video captures provided on the enclosed disk (the “videos”) indicate hydrocarbon emissions at facilities owned by Chevron U.S.A. Inc. (“Chevron”).<sup>1</sup> This letter provides you with the opportunity to address observed emissions and ensure compliance with permits issued by the Texas Commission on Environmental Quality (“TCEQ”).

EPA is concerned about environmental impacts and safety issues posed by the potentially unauthorized hydrocarbon emissions in the enclosed videos. Please review each video and the information we have provided for each facility listed in the summary table on the enclosed disk. EPA determined site ownership through the matching of global positioning coordinates available in current federal and state databases and permits issued by TCEQ. Please verify your ownership, confirm each facility’s identity, provide the current site-specific permit information (both permit and application) and take any corrective action necessary to address any unauthorized hydrocarbon emissions at the facilities listed in the enclosure and identified in the OGI videos. Additionally, we encourage you to describe these corrective actions and provide this information to EPA as we are currently evaluating enforcement options. For your convenience, our summary table is provided in Excel format.

<sup>1</sup> Please be advised that some companies may qualify as a “small business” under the Small Business Regulatory Enforcement and Fairness Act (SBREFA). The U.S. Small Business Administration has established a Table of Small Business Size Standards, which can be found at: [http://www.sba.gov/sites/default/files/Size\\_Standards\\_Table.pdf](http://www.sba.gov/sites/default/files/Size_Standards_Table.pdf). The SBREFA Information Sheet provides information on compliance assistance to entities that may qualify as small businesses as well as to inform them of their right to comment to the SBREFA Ombudsman concerning EPA enforcement activities. The SBREFA Information Sheet can be found at: <http://nepis.epa.gov/Exe/ZyPDF.cgi/P100BYAV.PDF?Dockkey=P100BYAV.PDF>.

We request Chevron direct information to Brandon Bammel, [bammel.brandon@epa.gov](mailto:bammel.brandon@epa.gov), of my staff, at the above address by December 13, 2019.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Thompson", written over the printed name.

Steve Thompson  
Chief  
Air Enforcement Branch

Enclosure (compact disk with videos and summary table)

cc: Michael Miller, TCEQ ([michael.miller@tceq.texas.gov](mailto:michael.miller@tceq.texas.gov))

Lat	Long	Time Interval Based Upon Sampling or Detection Characteristics	RTG Registered Entity No.	Permit Number	Permit Date	Permit Type	Permit Registration	Permit Status	Permit Type	Permit Status	Site Name, Description of Project, Status, Location
31.888748	-113.8573	94.016 COMB WLS 5111510	8818033110	11951	8/28/2018	NCHP RARE STORMS (E1 N012-4809-081)			5/28/18	5/28/18	State of Ohio, Lake Erie
31.730894	-104.0378	54.811718 C78	98108745750	148218	8/31/2013	P08 1081 30319 (E1 2052-13 021)			5/12/18	5/12/18	State of Ohio, Lake Erie

Notes:  
 \*Record name information from summary is derived directly from information.